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ABSTRACT

Education systems in third world countries are facing severe pressures. The need for qualitative and quantitative advances has forced governments to seek innovative ways to achieve their goals. "School Clusters" is one such innovation. A cluster is a grouping of schools for administrative and educational purposes. Some common objectives of clustering may be to help use scarce resources more efficiently, decentralize decision-making, help disadvantaged communities, increase participation in development, support isolated teachers, and improve social equity. Individual third world countries including Sri Lanka, Thailand, India, Peru, Costa Rica, and Papua New Guinea have made use of the school cluster system. The programs used in each of these countries are reviewed to provide insight into the implications for future policies and programs in other third world countries. Although clusters seem to play a positive role in helping to improve the operation of school systems, this international experience shows evidence of shortcomings and failures as well as successes. Much can be achieved, however, provided policymakers are realistic in their aims and pay careful attention to design and implementation. (48 references) (LAP)

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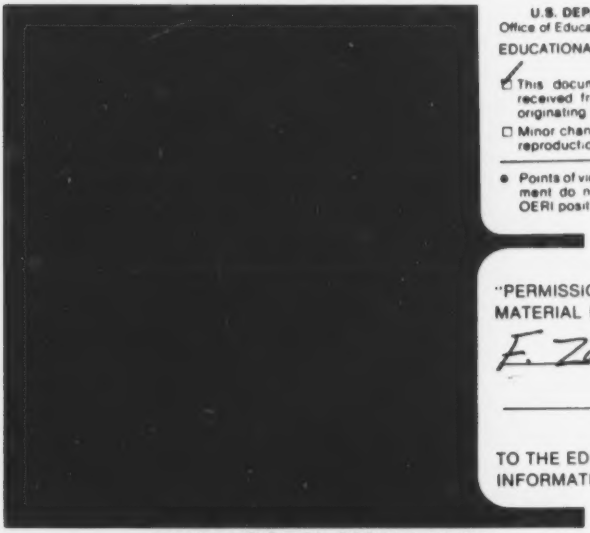
Digest 23

School Clusters in the Third World: Making them Work



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Digest 23

School Clusters in the Third World: Making them Work

by

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INTRODUCTION

Most Third World education systems are facing severe pressures. On the one hand they suffer from financial stringency, caused by domestic and global economic depression. On the other hand they have to satisfy constantly rising demand, caused by rapid population growth, by general desires for higher qualifications, and by continuous concern for improved quality. The need for quantitative and qualitative advances within a framework of financial austerity has forced governments to seek innovative ways to achieve their goals.

School clusters are one such innovation. They have been particularly popular in Latin America, and in recent years have been increasingly prominent in other continents. In Latin America they have been introduced in Bolivia, Colombia, Ecuador, Guatemala, Honduras, Nicaragua, Panama and Peru; and elsewhere they have been introduced, among other places, in Burma, India, Nigeria, Papua New Guinea, the Philippines, Thailand and Sri Lanka. This Digest examines the experiences of these countries, and draws out the lessons which may be generally applicable.

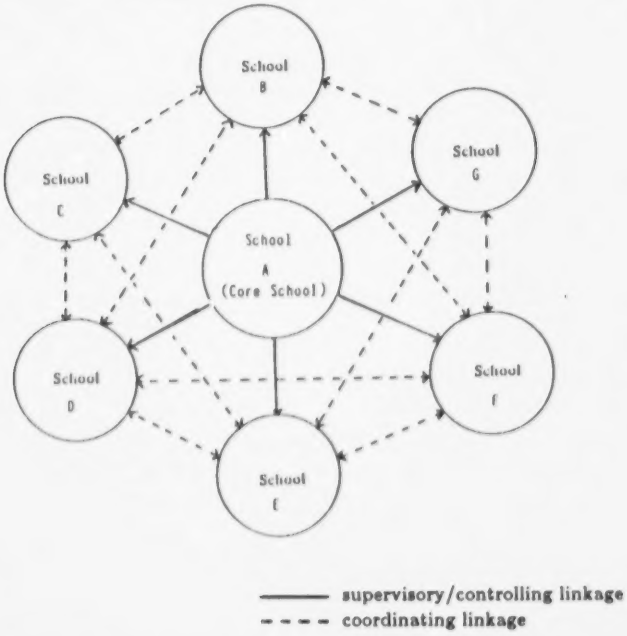
What is a School Cluster?

Since school clusters are unfamiliar to many people, it is necessary to begin with a definition. In the context of this study, a cluster is *a grouping of schools for administrative and educational purposes.* In Latin America, clusters are usually called *Nucleos.* Other names are *complexes*, *zones* and *school learning cells.*

The meaning of the concept may be clarified by focusing on structures. Figure 1 shows a common cluster model in which one school is made a 'core' or 'central' institution,

and is the leader of several 'satellite' institutions. The head of the core school coordinates the work of the cluster. He usually pays particular attention to sharing of resources and to staff development.

Figure 1: A Common School Cluster Model



The cluster shown in Figure 1 has seven schools, among which School A is the core school. The cluster may be composed:

- entirely of primary schools,
- entirely of secondary schools, or
- of both primary and secondary schools.

Many cluster schemes also seek to integrate schools with nonformal education.

The Purposes of Cluster Schemes

Survey of cluster schemes shows many common purposes. Chief among them are:

* *Economic*
  - sharing of facilities,
  - sharing of staff,
  - bulk ordering of materials, and
  - fostering community financial support.

* *Pedagogic*:
  - allowing schools to gain access to extra resources,
  - encouraging teacher development,
  - promoting curriculum development,
  - providing an environment for innovation,
  - encouraging cooperation in school projects,
  - encouraging pupil competition, e.g. in sports and examinations,
  - integration of the different levels of schooling, and
  - integration of schools with nonformal education.

* *Administrative*:
  - acting as a focal point to which instructions from higher levels in the hierarchy may be sent,
  - acting as a centre for collection of information on enrolments, staffing, etc.,
  - local decision-making, e.g. on teacher posting and leave arrangements,
  - improved planning, and
  - providing a better framework for teacher inspections.

* *Political*:
  - raising consciousness about the causes of under-development and of the actions that can be taken

by individuals and communities,
- increased community participation in decision-making, and
- reduced regional and social inequalities.

The cluster concept has partly grown from developments in microplanning. Advocates of microplanning point out that even in the smallest country it is impossible for the central Ministry of Education to know the specific circumstances of every school and community. It is of course essential to integrate all plans into a national framework; but it is also essential to treat each locality as an entity in itself. Microplanning, which implies a degree of decentralisation, can also permit a stronger local participation in decision-making.

School maps are a particularly valuable instrument for microplanning, for they help identify the existing distribution of resources and the major development gaps. It is no coincidence that the nuclearisation project in Colombia, for example, is coordinated by the National Technical Team for Educational Mapping, for the initial awareness of the benefits of nuclearisation in this country arose from school mapping exercises.

Seen in this light, the growth of the school cluster concept results from the intersection of concerns about microplanning, school mapping, decentralisation, and popular participation. Viewing the matter from a different angle, school clusters are widely seen as a way to improve the use of scarce resources and to upgrade educational quality.

The Range of Models and Emphases

As readers go through this Digest, they will become aware of a wide range of models and emphases. There may be variations in the power of the coordinator, for example, and in the mechanisms for sharing resources. Clusters may also vary considerably in size. For instance, whereas most nucleos in Costa Rica had only five or six schools each, the nucleos in Peru often had 30 to 40 schools each. The size of a cluster

has a major influence on its mode of operation.

Subsequent chapters will also highlight the political context. In Peru, for example, nuclearisation was introduced following a nationalist revolution, and the nucleos were expected to play a major role in consciousness-raising and political mobilisation. The projects in India, Sri Lanka and Thailand, by contrast, were launched in a much more conservative atmosphere. They were much more concerned with administrative improvements than with broader issues of political change.

Cluster schemes also show wide variations in their scope. As the two extremes:

* In Sri Lanka, introduction of school clusters has required partial federation or *amalgamation* of neighbouring schools. The cluster head has authority to move staff and resources between schools, and heads of ordinary schools have much less authority than they would in an unclustered system.

* In Papua New Guinea, by contrast, schools are only grouped for the specific purpose of in-service training and for common use of Education Resource Centres. Clusters are relatively loose, and team leaders have little formal authority.

A Balanced View

Readers will notice that subsequent discussion comments on problematic features of cluster operation as well as on positive ones. It would be deceptive to pretend that cluster schemes always work smoothly, and the case studies in Part II show several common difficulties. This is essential information for educational administrators, for only if they have full awareness of the pitfalls can they take appropriate action. The positive and negative features are summarised in Part III, which also identifies specific implications for policies and programmes.

Different Names and Different Models

The title of this Digest, and much of the discussion, uses the term cluster. *But most authorities in Latin America use the word* nucleo; *the governments of India refer to* complexes; *their counterparts in Papua New Guinea refer to* zones; *and authorities in the Philippines refer to* School Learning Cells. *Despite the differences in name, most models have strong similarities.*

However, differences do exist, and should be carefully noted. Confusion particularly arises when models with the same name show marked contrasts in different countries. For example, later discussion will highlight major differences between the nucleos in Peru and Costa Rica. The term nucleo was used in both cases, but project aims and structures were rather different.

I. OBJECTIVES AND MODELS

1. The Objectives of School Clusters

The Introduction has already pointed out that most Third World countries suffer severe economic pressures, which hinder achievement of both quantitative and qualitative goals in education. The majority of cluster schemes have evolved in this context. Clusters can still be valuable in prosperous countries, however. They can be vehicles for decentralisation of educational administration, and they can be particularly helpful to small schools.

Although the emphasis in the aims of specific projects varies considerably, a number of themes are common. The first part of this chapter outlines the most prominent objectives of cluster schemes. They may be grouped into (a) economic, (b) pedagogic, (c) administrative and (d) political objectives. The second part of the chapter comments on variations of emphasis among cluster schemes in different countries.

1. Common Objectives of Cluster Schemes

(a) Economic Objectives

The chief economic objective of most cluster schemes is to improve cost-effectiveness. This may be done in three main ways: (i) sharing facilities, (ii) sharing staff, and (iii) permitting bulk orders of materials. Several additional ways to improve cost-effectiveness are mentioned under other headings. The chief ones are (iv) improvements in educational quality and (v) simplified administration.

A slightly different type of economic objective is mobilisation of extra resources. For example, Chapter 5 points out that some Indian school complexes have specifically aimed to generate extra resources from the community. This is a more peripheral economic objective, however, and discussion below concentrates on cost-effectiveness.

(i) Sharing Facilities

The facilities that can be shared among schools within a cluster include:

* equipment (e.g. for science, agriculture and sports),
* books (e.g. library books, and multiple copies of class readers required for only a few weeks each year in English classes), and
* buildings (e.g. science laboratories, workshops, theatres and gymnasiums).

If individual schools invest in these facilities by themselves, they are likely to find that the resources are idle for much of the time. Only if a school is fairly large can it fully utilise a gymnasium, a set of physics equipment, and a tractor, for example. And once initial investments have been made, buildings have to be maintained, storage space has to be provided for the equipment, and safeguards have to be taken against theft and damage.

If schools are grouped together, they can share costs and use resources more effectively. Increased intensity of use might reduce the life span of the buildings and equipment; but productivity would have been increased, and the intensive use would have been justified. Moreover, some items (such as computers) rapidly become outdated; because of this, a short life span arising from intensive use may be very desirable.

Figure 2: Method of sharing among cluster schools when the centre has only one set of a particular instruction material or equipment

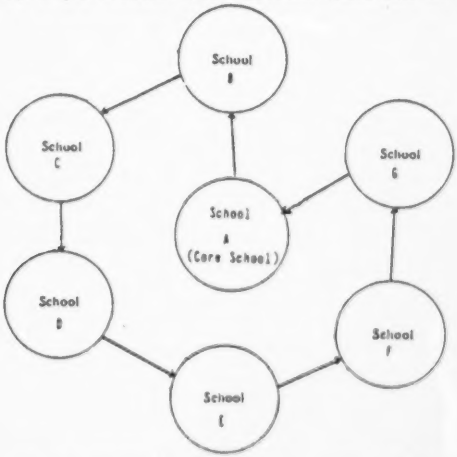


Figure 3: Method of sharing when two sets of material can be lent to the schools

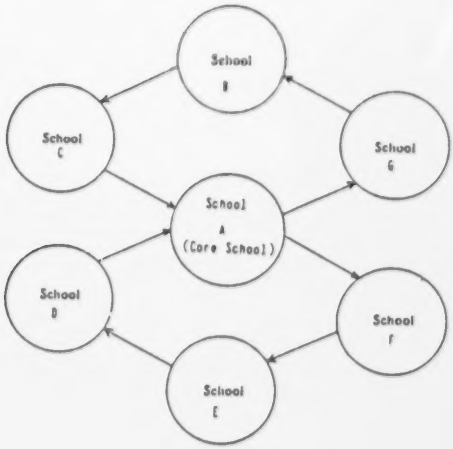


Figure 4: Method of sharing when three sets of material can be lent to the schools

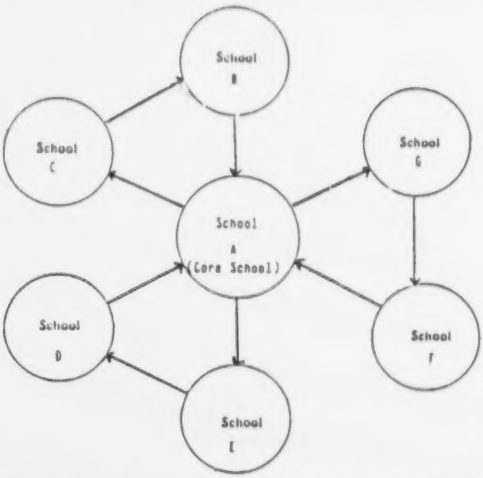
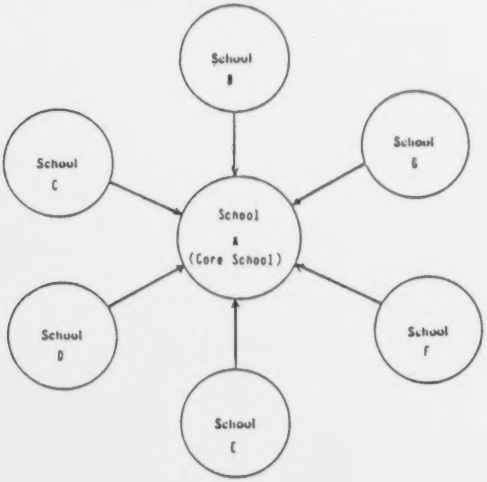


Figure 5: Simultaneous use of equipment in the core school



Figures 2-4 show the ways that cluster systems can be organised to share movable resources. Figure 2 indicates a way that the schools can share an instructional item when the cluster has only one; Figure 3 shows a method of sharing when there are two sets of materials; Figure 4 shows a method of sharing when there are three sets.

In other cases, the resources sited in the central school may be immovable. Laboratories and delicate science equipment are obvious examples. In this case the pupils from the satellite schools have to come to the central school, as shown in Figure 5.

(ii) Sharing Staff

Similar strategies are possible with specialist staff, i.e.

- *teaching staff*: specialist teachers of languages, art, music, physical education, computers, etc., and
- *non-teaching staff*: typists, maintenance workers, accountants, gardeners, etc..

Medium-sized and small schools may not have enough work to keep these people occupied full-time. Thus, specialist teachers, for example, either have low teaching loads or have to teach other subjects in addition to their specialisms. Both options fail to make full use of their talents. By contrast, sharing of specialist staff between institutions allows the staff to be fully occupied within their own specialisms.

In addition, cluster systems provide pools of teachers for use during emergencies. This is particularly important for small schools. For example, if the single teacher in a one-teacher school has to be absent (e.g. because of sickness or urgent family business), then normally the school has to close until the teacher returns. In a cluster system, it is usually possible to transfer a teacher from another institution to keep the school running till the original teacher returns. The cluster system also avoids the need for every school to have its own 'reserve' staff who may be

underutilised for much of the time.

(iii) Bulk Ordering of Materials
If schools group together to order supplies (such as stationery, chalk and cleaning materials), they can usually attract discounts. They are also likely to gain reduced transportation costs. Moreover, some suppliers (e.g. of science equipment) will *only* meet orders of a minimum size. Small schools may not be able to justify orders of this size, so that the only way to obtain the materials is by grouping their orders with those of other schools.

(b) Pedagogic Objectives
Pedagogic objectives are of two main types: (i) improvement of quality within individual schools, and (ii) linkage of different types of school, and of schools with nonformal education.

(i) Improvement of Quality
The chief way that clusters can help improve school quality emerges from the previous discussion on sharing resources: through a cluster, individual schools gain access to the facilities and staff of other schools.

In addition, if no school in the cluster currently has certain resources, the fact that several schools are grouped together improves their 'bargaining power'. For example, an administrator might be unwilling to pay for a piano teacher for a single school because he might feel that there were too few pupils to justify the investment. As soon as schools group together, however, the number of pupils increases and it becomes easier to justify the teacher's salary.

School clusters may also improve educational quality in other ways:

* *Teacher Development.* Many teachers, even in urban environments, are rather isolated. Clusters can encourage them to be more outward-looking. Clusters

meetings help teachers to share ideas and tackle problems, and as such the meetings act as a form of in-service training. The older and more experienced staff can help the younger and less experienced ones, and the enthusiastic teachers can inject new life to the tired ones.

* *Curriculum Development.* Many clusters have held successful curriculum workshops at which new materials have been tried out and teaching aids have been prepared. In Costa Rica, for example, some nucleos produced completely new materials in the local languages; and in Sri Lanka and India major advances have been achieved through cluster-organised demonstration lessons.

* *Innovation.* The paragraph on curriculum, above, already indicates one kind of innovation, and to it can be added many others. The case study on Thailand, for instance, highlights a 'tin box circulating library' project; and the study of Peru shows how one nucleo promoted literacy and nutritional education. Comparable examples may be found in every country. Decentralisation of decision-making to the cluster level allows committees to embark on their own projects, fitting their own needs and resources.

* *Cooperation in School Projects.* Cluster schools commonly join together for educational visits, e.g. to factories and historical sites. This may help reduce unit costs, and enlarges the number of peers with whom individual pupils can interact. The benefits of this type of cooperation are specifically mentioned in the Sri Lankan case study.

* *Competition between Pupils.* Competitions can be organised for both academic and non-academic activities. It is common for clusters to organise

common examinations, both to help them evaluate their standard and to encourage pupils to work harder. Many clusters also organise sporting events.

Many of these activities are particularly important for small schools. Staff in these schools have few colleagues with whom to discuss ideas, and thus particularly likely to be isolated. The same is true of pupils, who have few peers with whom to interact and against whom to compete. Moreover, schools with only one or two teachers are very vulnerable to the quality of those teachers. If the teachers are good, then the school is lucky; but if they are bad, there is no one to compensate for them. A cluster system spreads the risks by enlarging the pool of staff from which the school can draw.

These points may also be linked back to the first-mentioned objective of cluster systems: by improving quality, cluster systems can also improve cost-effectiveness.

(ii) Linkage between Levels and Types of Education

Many school clusters specifically group together schools of different levels. They particularly hope to promote linkages between primary and secondary schools, so that:

- the primary schools can gain access to the (usually more plentiful) facilities of the secondary schools,
- the primary schools can gain access to the (usually more highly qualified) staff of the secondary schools, and
- the secondary schools can gain better understanding of the backgrounds of the pupils that come to them.

Some cluster schemes, for example in Ecuador, Peru and Sri Lanka, have aimed through clusters to link schools with nonformal education. The nonformal programmes have particularly benefitted from the resources and the institutional frameworks of the schools.

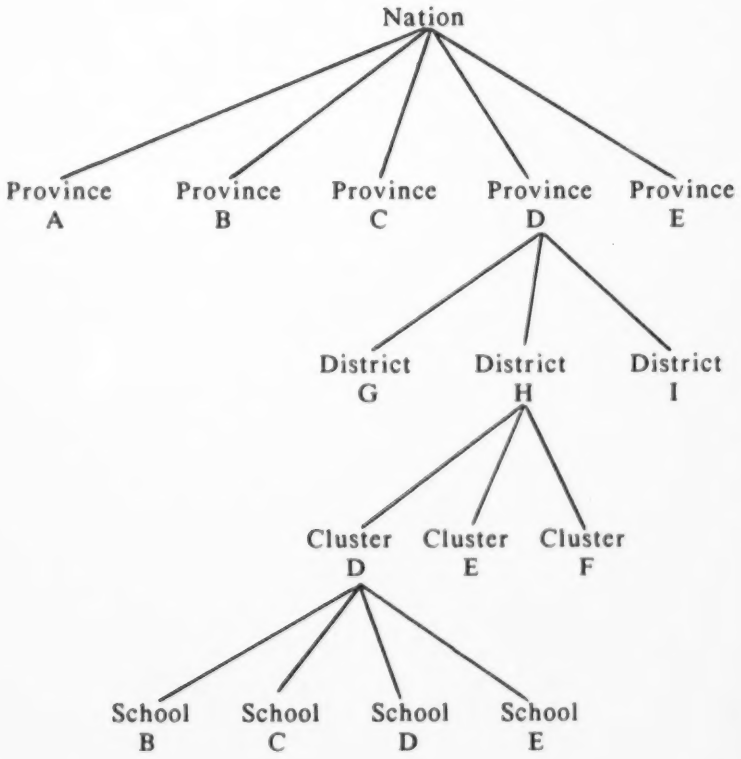
(c) Administrative Objectives

In some countries, clusters have been made a formal unit in the administrative hierarchy, between the districts and the schools, as shown in Figure 6.

This type of arrangement has several advantages:

* The work of District Education Officers is simplified. Instead of dealing with every school individually, officers can work through the cluster heads. Instructions, e.g. on curriculum matters or staff conditions of service, can be sent the cluster head for onward transmission to the schools.
* In the same way, school statistics and other information can be collected by the cluster head before being transmitted to the district and provincial levels.
* Cluster heads can be delegated authority to make decisions, e.g. on leave arrangements and deployment of staff within clusters. This can improve the efficiency of operation.
* Because cluster heads are likely to know their areas and their personnel particularly well, they may be more effective at certain types of planning. For example, they may be able to predict local population changes that arise from the opening of a factory or the construction of a road, and they can seize opportunities to make use of local talent and other resources.
* Good responsiveness to local environments is particularly important in countries containing regions with widely differing climates, regions, languages, etc.. And because cluster leaders can view their systems as a whole, they can also improve the planning process.
* In some cases (e.g. Bihar State, India), cluster heads have been given authority to inspect teachers. It is felt that the cluster heads are geographically closer to their staff, and are better acquainted with the individuals in their charge.

Figure 6: Clusters may be a formal unit in the administrative hierarchy



Linking back to the objective of cost-effectiveness, it should be noted that if the cluster system succeeds in simplifying the administrative system, it also promotes efficiency and saves money.

(d) Political Objectives

Four political objectives deserve particular note: (i) 'Conscientisation', (ii) community participation, (iii) reduced inequalities, and (iv) ethnic harmony.

(i) 'Conscientisation'

This word, coined by the great Brazilian educator Paulo Freire, means general consciousness-raising in a political sense. Freire's philosophy has had a major influence on the nuclearisation projects in Ecuador, Nicaragua and Peru. The 1972 nuclearisation scheme in Peru, for example, drew its force from the country's 1968 revolution. Each nucleo was supposed to be governed by a Community Council, which was expected to use political analysis to identify its needs and to shape the education system accordingly.

(ii) Community Participation

Conscientisation, of course, requires community participation. However, it is also possible to promote more limited community participation through cluster schemes without going to the lengths implied by conscientisation. Several schemes in India, for example, have tried to use school complexes to revitalise Parent-Teacher Associations. Usually the parents are chiefly invited to contribute inputs to the existing school system, and they are not expected to propose radical structural changes in the way that was anticipated in Ecuador, Nicaragua and Peru.

(iii) Reduced Inequalities

Cluster schemes commonly attempt to reduce inequalities:

- between institutions by encouraging the well-endowed, prosperous schools to share their resources with the less fortunate ones; and
- between regions by operating only in disadvantaged areas, and by serving as the vehicle for injection of new resources to those areas.

As an example of regional initiatives, the first nuclearisation project in Latin America, launched in Bolivia in 1931, specifically aimed to help the disadvantaged indigenous peoples that were concentrated in one area. An early project in Peru, launched in 1945, had a similar objective; and the Costa Rican initiative was targetted on the disadvantaged rural areas rather than on the country as a whole.

Some cluster schemes specifically try to link government and private schools. In some countries, private schools tend to be richer than government ones, while in other countries they tend to be poorer. Whichever is the case, the cluster system encourages the prosperous schools to share their resources with the less prosperous ones.

(iv) Ethnic Harmony

In Sri Lanka, school clusters were specifically designed to promote ethnic harmony. For historical reasons, many schools serving particular ethnic groups had grown up independently of each other. Clusters deliberately grouped together the schools of different ethnic groups in order to encourage communication and a framework for common activities.

2. Variations in Project Emphasis

These objectives of cluster projects are not found in equal proportions in every case. Table 1 highlights variations by summarising the emphasis of the models discussed in Part II of this Digest.

Particularly notable points arising from the table are that:

* all schemes were concerned with sharing of physical resources, though not all envisaged corresponding pooling of staff;
* whereas some schemes specifically encouraged communication between schools of different levels, this was not true in Thailand, Uttar Pradesh or Papua New Guinea;

Table 1: The Emphasis of Different Cluster Projects

	Sri Lanka	Thailand	India --- B	H	M	R	TN	UP	Peru	Costa Rica	PNG
Economic											
sharing facilities	x	x	x		x	x	x	x	x	x	
sharing staff	x	x	x							x	
bulk ordering		x									
community support			x		x				x		
Pedagogic											
access to resources	x	x	x	x	x	x	x	x	x	x	
teacher development	x	x	x	x	x	x	x		x	x	x
curriculum development	x		x	x	x	x			x	x	x
innovation	x	x		x	x				x	x	x
cooperation in projects	x	x	x		x	x	x	x	x	x	x
pupil competition	x	x	x	x		x		x			
integrating school levels	x			x	x	x	x		x	x	
integr school & nonformal	x			x					x	x	
Administrative											
instructions from above	x	x							x		
forwarding data	x	x							x		
staff deployment	x	x	x						x		
improved planning	x	x	x	x		x		x	x	x	
inspections		x	x								
Political											
conscientisation									x		
community participation			x		x				x	x	
reduced inequalities	x								x	x	
ethnic harmony	x										

x = strong emphasis in the cluster model design.

B = Bihar; H = Haryana; M = Maharashtra; R = Rajasthan; TN = Tamil Nadu; UP = Uttar Pradesh.

Note: The table is chiefly concerned with the models as they were designed rather than as they worked out in practice. Chapter 3 for example points out that nonformal education in Sri Lanka has received less emphasis in implementation than originally intended.

- only Sri Lanka, Haryana, Peru and Costa Rica emphasised linkage of schools with nonformal education;
- while improved planning was a common administrative aim, not all cluster models encouraged cluster heads to redeploy staff within the clusters;
- although conscientisation was a major feature of the Peruvian model, it was much less prominent in the others.

Further differences in emphasis will emerge from the case studies, and will be discussed in Part III of this Digest.

2. Alternative Models

As has already been pointed out, cluster models can be adapted according to the aims that the authorities consider most important. This chapter enlarges on five aspects of cluster design. Further aspects will emerge from the country studies, and will be commented on in Part III of the book.

1. The Basis for Cluster Formation
The range of models may be illustrated by three examples on a continuum. The first model is far-reaching, the second is intermediate, and the third is the least extreme.

(a) The Extreme Model
In this system, the cluster committees have very wide powers. Among powers in Sri Lanka and Thailand, for example, are determination of cluster budgets and recommendation of staff for promotion. In Sri Lanka, cluster committees can also transfer staff within their clusters. In both countries the roles of cluster heads are set out in official regulations, and in the Thai case they are enshrined in a national law.

(b) The Intermediate Model
In this situation, schools are formally grouped together by higher authorities, but the controlling committees have much less extensive powers. For example, the government might establish a set of Education Resource Centres in different parts of the country. It is then likely to indicate which schools are supposed to be served by each centre. The director of the centre organises workshops and distributes materials around the schools, but cannot transfer staff among the schools or make recommendations for promotion. Among

other countries, this type of model exists in Indonesia, Malaysia and Papua New Guinea.

(c) The Least Extreme Model

In the least far-reaching model, membership of a cluster is voluntary. Schools group *themselves* together, and can abandon the association if they wish.

This type of cluster may be found in all parts of the Third World. The schools hold joint meetings of Parent-Teacher Associations, for example, group together for sports and other activities, and share resources as the needs and opportunities arise. Usually they appoint committees to organise meetings and supervise implementation of decisions, and many formalise their association with written constitutions. Others, however, are completely informal. The Chairmen rely entirely on voluntary cooperation, and have very few sanctions to enforce control.

The chief advantage of the informal operations is that they are entirely self-help schemes. They can greatly improve the nature of education provision, *without* requiring financial or other support from governments. In many cases, these associations generate resources of their own, through voluntary contributions of labour, money and materials.

On the other hand, such voluntary associations may be fragile. They often rely on the enthusiasm and leadership of a few individuals, and collapse if those individuals either leave the locality or become distracted by other affairs. Moreover, there have been cases of clusters being exploited for political ends, of funds being embezzled, and of unrealistic and wasteful projects being embarked upon with inadequate planning. It is to avoid these negative aspects that many governments choose to formalise clusters and to make them accountable to higher levels.

2. Coverage

Two aspects of coverage may be considered here: (a) the nature of the institutions that clusters can include, and (b) the geographical areas that they may cover.

(a) Institutional Coverage

As mentioned in the Introduction, some clusters embrace only primary/secondary schools, and some embrace both.

Three main arguments favour clusters composed of only primary or secondary schools:

* If primary and secondary schools are grouped in the same cluster, the secondary schools are likely to dominate. The staff of secondary schools may not be sympathetic to the needs of primary schools, and the operation of the cluster may be unbalanced.
* For most matters, the schools need to cooperate only with other schools at the same level. It is unsatisfactory, for example, for sports meetings to require competition of primary school children against secondary school ones; and in curriculum matters the chief needs are for staff to discuss problems with other staff who face similar problems.
* Formal linkage of primary and secondary institutions reinforces the idea that all primary children should aim to proceed to secondary school. Few governments can yet afford universal secondary education, and the arrangement may raise unrealistic expectations.

On the other hand, several arguments can also be found to support mixed clusters:

* Secondary schools usually have more resources than primary ones, and it is desirable for these resources to be shared.
* Secondary school staff usually have more training than primary school ones, so can provide important leadership.
* Both sides need to have a good understanding of conditions and requirements at each level. The primary staff need to know what conditions the pupils will face when the children move to secondary schools; and

in order to teach the children effectively in the lower forms at secondary school, the secondary staff need to know how and what the pupils have been taught in primary school.

It is therefore possible to make a case for each type of model. This fact explains the diversity which will become apparent in Part II of this booklet.

(b) Geographical Coverage

Different models also exist for geographical coverage. In Thailand all schools are required by law to be members of a cluster, and the network therefore covers the whole country. In Colombia and Guatemala, clusters have been introduced as part of special schemes for disadvantaged areas, and have aimed only at coverage of those specific areas. And in Sri Lanka and parts of India, cluster schemes have covered only the schools that have chosen to join.

Where the cluster is seen as a formal unit in the hierarchy, it is more satisfactory for all schools to be members of clusters. It is administratively untidy for a District Education Officer to have to deal with some schools directly but others indirectly.

On the other hand, several factors suggest that enforced uniformity is undesirable:

* Some schools are too remote for effective cluster membership. In ideal circumstances, no satellite school should be more than five or six kilometres from the core school. If a school is very remote, then it is hard for its staff to attend meetings, to borrow and lend equipment, to organise sports meetings, etc..
* Equally, some schools may be too large to join clusters. They are already so large that they have no need to seek economies of scale; and if they become cluster members they can cause severe imbalances in the organisations.

Again, the model that the authorities select depends partly on their aims. If they require a new tier in an administrative hierarchy, then they are likely to opt for universal coverage. But if they prefer associations to be voluntary and are worried about the very remote and the very large schools, then they will allow geographical coverage to be partial.

3. Size

The Sri Lankan project defined appropriate cluster size according to the number of *pupils*. This linked back to arguments that some schools could be too big to join a cluster, as noted above. Most schemes, however, set the framework for clusters in terms of the number of *institutions*.

Even within the latter framework, there may be wide variations. For example, in India's Rajasthan State school complexes have had up to five secondary schools plus up to 25 primary schools. By contrast, nucleos in Costa Rica and Honduras had only five or six schools each.

The chief factors which will determine the number of schools in a cluster will be whether:

* the cluster is for secondary schools, primary schools or both,
* the schools are reasonably close together,
* roads and other systems of communication are reasonably good,
* the communities concerned have broad outlooks and are prepared to cooperate with distant neighbours, and
* the cluster system operates *instead* of an existing district education administration or *in addition* to it.

4. Appointment of Leaders

In some systems the cluster head is appointed by the government, and holds the post permanently. In other systems the head is elected by the members, and only holds office for a

fixed period of time.

The advantage of the former system is that the authorities can select an individual whom they consider to be appropriate, and can terminate his/her appointment if performance is unsatisfactory. Individuals who expect to remain in the post for several years are also better able to plan ahead and to see the fruits of their labours

The advantage of a system of elections, by contrast, is that it is based on the consensus of the people who will be affected. Moreover, the people who actually work with election candidates often have better understanding of the candidates' abilities and limitations than do higher level government officers.

However, systems that rely on elections do not always run smoothly. Individuals who contest the elections but lose, may be unwilling to cooperate with their rivals who have won; and sometimes the elections lead to a tense political atmosphere. In addition, if the system requires the cluster leader to be based in the core school, then either the election requires the leader to be transferred (unless she/he is already there), or else it requires the core school to be located in a place that may not be very suitable.

If the school of the leader is always made the core school, moreover, the core school could change every time there is an election. Some people would argue that this would help spread resources and responsibilities among the different institutions. However, it is hard for the cluster leader to supervise the sharing of resources of the richest school if she/he is not actually based in that school.

5. Financing

Wide variation exists on the extent to which governments give clusters extra resources. In some systems, they are allocated both administrative staff and an extra budget; but in others they are expected to subsist on existing resources.

The model that is followed will chiefly depend, of

course, on whether the education authorities *have* any extra resources. If budgets are tight and political forces do not favour the education sector, then the authorities have no choice. However, it must also be noted that clusters which are expected to survive without their own resources tend to be fragile. Where clusters have resources of their own, they find it easier to attract allegiance and respect. This may at least imply a need to transfer part of individual school budgets to the clusters.

At the same time, well-organised clusters may be able to generate extra resources from their communities. For example, they can hold combined meetings of the Parent-Teacher Associations from each school, and can launch joint building, maintenance and other support projects.

Clusters as a Resource Network

Under the heading of resources, clusters can be viewed in three ways: (i) as resources in themselves, (ii) as mobilisers of resources, and (iii) as users of resources.

(i) The clusters' own resources are both human and material. The human resources are the staff, parents and pupils; the material resources are the buildings and other facilities.

(ii) Clusters can mobilise resources both from governments and from communities.

(iii) They use the resources for cluster projects. These can be based in either the core schools or the satellite schools.

II. CASE STUDIES

This part of the Digest surveys experiences from widely divergent regions, with differing political regimes and contrasting cluster frameworks. The political regimes range from revolutionary Peru to more traditional Thailand; and the cluster schemes range from the highly structured Sri Lankan model to the much looser Papua New Guinean one.

The dominant aims of the cluster schemes also vary. For example, whereas the main Peruvian scheme was closely linked to the military's nationalist revolution and was an instrument for increased local participation in decision-making, Thailand's project was launched within a much narrower administrative framework, chiefly to improve efficiency. And while some cluster schemes have been allocated substantial resources, others have been expected to survive with no additional inputs at all.

It is also important to note variations in the size of the basic units. For example, whereas the nucleos in Peru commonly had 25 schools each and sometimes reached twice that number, most nucleos in Costa Rica had only five or six schools each. Thus, the Peruvian nucleos were to some extent equivalent to school *districts* in Costa Rica. Readers should not be misled into thinking that because the projects had the same name they were necessarily comparable in size or other features.

These points will be elaborated on in Part III. Meanwhile, each chapter in this part surveys the rationales, history and development of projects in six countries. Discussion pays particular attention to the ways that the clusters were set up, and to the practical aspects of their implementation.

3. Sri Lanka

The Sri Lanka school cluster scheme was first officially proposed in 1981, and then launched in a set of pilot projects. It has some distinctive features that arise from the country's cultural and historical circumstances, but other features are applicable to all schemes.

The account presented here is chiefly based on the work of Samaranayake (1985), but also draws heavily on work by Perera (1983, 1985). It examines (1) the nature of the system, (2) the process of cluster development, (3) two case studies, and (4) achievements and constraints.

1. The System

(a) Functions of Clusters

The chief functions of clusters in Sri Lanka are applicable to all cluster schemes, i.e.

* to encourage schools to share resources and thus to improve efficiency in the system,
* to encourage staff of different schools to communicate with each other, and thus to promote professional development,
* to facilitate planning of the education system,
* to improve the quality of education, and
* to reduce inequalities between schools.

An additional objective is distinctive to the Sri Lankan situation. The country has long been troubled by tensions

between peoples of different races and religions. In the education sector, this has led to construction of schools to serve different peoples. As well as wasting resources, the proliferation of separatist schools has increased mistrust between peoples. The Sri Lankan cluster scheme hopes to break down barriers between communities, and to promote cooperation and understanding.

As originally designed, clusters were also supposed to link schools with nonformal education. They were intended to become bases for a network of 'open schools' to meet the learning needs of persons not enrolled as full-time pupils. However, this concept has not been pursued during cluster implementation

(b) Organisation

(i) Composition

Although in some countries clusters are restricted to the primary level, in Sri Lanka they link primary with secondary schools. This gives primary schools access to secondary school resources, and it improves secondary schools' understanding of the background of the children that come to them.

(ii) Size

The 1981 proposals envisaged that each cluster would have 3,000 to 5,000 pupils. This implied considerable range in the number of schools which would be grouped together to form a single cluster. Most of the 21 pilot clusters launched between 1981 and 1983 had around 10 schools each, but one had only six, and one had 17.

It was estimated that eventually 90% of pupils would be enrolled in clusters. Some schools were so big that they could not easily be grouped with other institutions without creating units that were too large and unbalanced. And a few

schools were so remote that there were geographic obstacles to grouping.

(iii) Links with the Bureaucracy

Before the creation of clusters, the country was divided into 31 regions. Each region was subdivided into about 10 circuits, each of which was administered by a Circuit Education Officer (CEO).

In some respects, this system was unsatisfactory. Whereas principals of smaller schools only had access in the hierarchy to CEOs, principals of large schools were equal in rank to the CEOs and had direct access to the regional and central administrations. This often meant that the large schools gained a disproportionate share of resources.

The cluster scheme tries to solve this problem by replacing the post of CEO with that of cluster head. Principals of non-clustered large schools are equal in rank to the cluster heads.

(iv) The Roles of the Core School Heads

The largest school, which normally has secondary grades, is usually made the core school. Its principal is made the executive head of the cluster, and an extra administrative post is created to assist her/him. The cluster head is accountable to the District Director of Education, and is responsible for:

- planning development of the whole cluster,
- recommending teachers for promotion,
- deploying staff within the cluster,
- supervising and organising curricular and co-curricular programmes,
- requisitioning supplies, and
- drawing up the cluster budget.

These are strong powers. The third is particularly worth emphasising. Staff are posted to the cluster as a whole, and the cluster head is responsible for deploying them within the cluster.

However, the cluster heads are also required to recognise the independence of the heads of individual schools. The cluster head usually delegates to individual principals the responsibility to discipline their own pupils and to run their own finances.

The cluster system helps small rural schools secure senior staff, for the cluster head has sufficient responsibility to justify appointment on a senior grade. In the previous system, senior officers were heavily concentrated in the towns.

(v) The Cluster Boards

Each cluster has an advisory board, formed of school principals and representatives of the School Development Societies. The cluster head is its chairperson. Although in the early years of cluster operation the board has had only an advisory role, the authorities have envisaged strengthening its role in the future.

2. The Process of Cluster Development

A major reform cannot be introduced overnight. Many stages of explanation, guidance and trial have to be undergone. The Sri Lankan experiences in the process of cluster development are instructive.

(a) Provision of Information

Once the government had decided to introduce the cluster scheme, it needed a massive publicity operation to explain

its motives and to answer queries. For reasons which were largely separate from the educational sphere, the innovation was the focus of considerable political opposition.

To meet the need for information and discussion, the Ministry took the following steps:

* Copies of the policy paper were made widely available.
* A special unit was set up in the Ministry of Education to initiate and respond to publicity in the press, on the radio and on the television.
* The Ministry organised seminars in every region for Regional Directors, Circuit Education Officers and school principals.
* Principals were requested to address their teachers, pupils and School Development Councils.
* Regional awareness sessions were organised for student representatives in Advanced Level classes of all schools. The Deputy Minister of Education participated in these sessions.
* Ministry of Education officials also made themselves available for discussions organised by universities, trade unions, professional bodies and religious, cultural and racial organisations.

The discussion generated through these means greatly helped clarify concepts and improve policies.

(b) The Operation of Pilot Projects

To identify problems and potential solutions, between 1981 and 1983 the Ministry launched 21 pilot clusters. This section describes the process of selection and the operation of these clusters.

(i) Selection of Sites

At first, officers attempted to select pilot projects on a systematic basis to represent various physical, economic and socio-cultural factors. However, the political climate did not permit this. The Ministry decided only to launch clusters where there was political support.

While in this respect the pilot clusters were not representative, they had a wide range of features. The sites included:

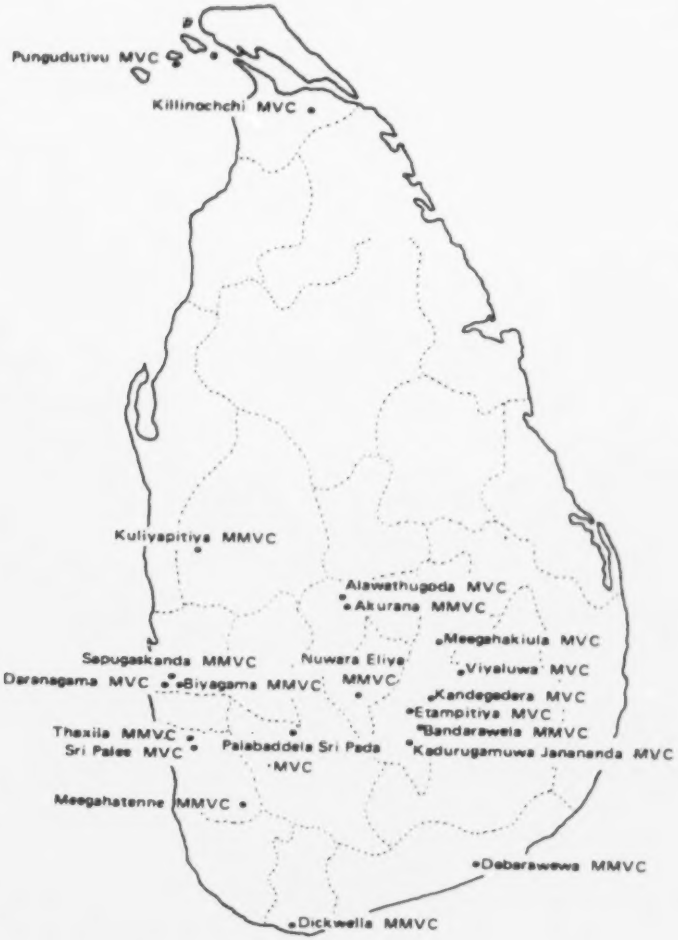
- areas with communication problems arising from physical inaccessibility,
- sparsely populated areas,
- urban and semi-urban areas with fairly good communications,
- multi-racial, multi-linguistic and multi-religious school systems, and
- predominantly mono-religious areas.

(ii) Administration

To administer the pilot projects at the national level, a special unit was set up in the Ministry of Education. Below this level the Regional Directors were responsible for monitoring the clusters in their own areas, and each assigned an officer to the project. Recognising the importance of school mapping to cluster development, the Staff Training College ran a special course in 1981.

Although the cluster concept did not envisage a role for the Circuit Education Officers, these posts were not immediately abolished and the cooperation of the CEOs was important. Operations were complicated because it was some time before the financial regulations were revised to give cluster heads the necessary authority. Principals therefore had a dual loyalty to the CEO on the one hand and to the

Location of Pilot Clusters in Sri Lanka



cluster head on the other.

While the proposal for the cluster scheme came from the central authorities and was a top-down decision, it required local support. The Cluster Boards were made responsible for liaison with communities.

(iii) Getting the Clusters Going

The process of cluster design and initiation required three main steps:

* *School Mapping*: This required Survey Department maps showing hills, land use, settlements, communication patterns and administrative boundaries. It also required statistics on schools' physical facilities, enrolments and staffing. The school mapping exercise helped identify the core school and the institutions that should be grouped into the cluster.

* *Seminars/Workshops*: These were organised on location with participation of Ministry officials, Regional Education Administrators, principals of the affected schools, and representatives of the School Development Councils. These participants added practical and political knowledge to the school maps and education statistics.

* *Formation of the Cluster Team*: The cluster principals were then grouped into teams. They were asked to assess the resources and priority needs of their groups. Their plans were to be submitted to the Regional Directors of Education for approval, and to the Ministry of Education for in-formation.

At the same time the Ministry, acting on recommendations, issued formal instructions on the establishment of clusters. The instructions were issued to the Regional Directors of Education and the principals of the cluster schools. Copies were sent to relevant divisions in the Ministry to facilitate coordination in providing services.

(iv) Monitoring and Evaluation

It was essential to collect systematic data on the development of school clusters and on the obstacles they faced. During the pilot phase, this was the responsibility of the School Cluster Unit at the central level, and the Regional Directors of Education and the Coordinating Education Officers at the regional level.

In addition, a committee chaired by the Deputy Minister of Education, was created to review the operation of clusters from time to time and to modify procedures as necessary.

3. Two Case Studies

To explain the operation of clusters in more detail, this section presents two case studies. First, however, it is necessary to introduce some terms.

The Sinhala word for school is Vidyalaya. The different school types are as follows:

Name	*Initials*	*Meaning*
Pratamika Vidyalaya	PV	primary school with Grades 1-5
Kanishta Vidyalaya	KV	junior secondary school with Grades 1-10

Maha Vidyalaya	MV	senior secondary school with Grades 1-12 or 6-12
Madya Maha Vidyalaya	MMV	senior secondary central school in a provincial centre.

(a) Palabaddela Sri Pada Cluster

This cluster is in Ratnapura Region, in the southern part of the country. Palabaddela village is the terminus of a motorable road, and is about 18 miles from Ratnapura town. The village is surrounded by small hamlets, most of which are served by primary schools. The area has many tea estates, but steep hills and valleys make communication difficult.

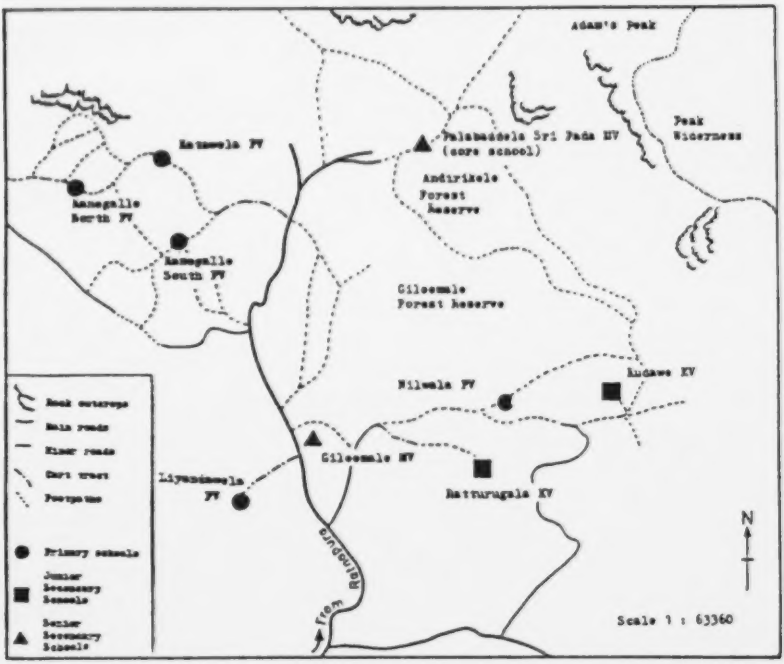
(i) The Composition of the Cluster

Palabaddela Sri Pada cluster has nine schools altogether: two MVs, four KVs, and three PVs. Their enrolments and other features are shown in Table 2.

Table 2: Characteristics of Schools in Palabaddela Cluster, 1982

Name	No. of Pupils	No. of Teachers	Pupil:Teacher Ratio	Miles from Core School motorable		on foot
Palabaddela Sri Pada MV	713	30	24:1			
Gileemale MV	551	25	22:1	5	+	1
Kudawe KV	211	5	42:1	20	+	1
Ratturugala KV	163	11	15:1	9	+	1
Katawela PV	125	5	25:1	2	+	1
Liyandawela KV	91	5	18:1	6	+	1
Nilwala KV	58	5	12:1	12	+	4
Kanegalle South PV	31	2	16:1	3.5	+	2.5
Kanegalle North PV	17	1	17:1	5	+	4

The Schools in Palabadella Sri Pada Cluster



As indicated by the map, the majority of schools are inaccessible by car. Even the core school is some distance from the road, and has to be reached by foot. Gileemale MV is the only institution that can be reached by public transport.

Initially, the principal of Gileemale MV and the representatives of his School Development Council proposed that because of its central location Gileemale MV should become the core school. However, the other members supported Palabaddela Sri Pada MV because it had become known as a leading

educational institution and had better resources. The staff from Gileemale accepted this proposal, and location of the headquarters has not been a source of tension.

In 1982, the total enrolment in the cluster schools was 1,960. This was considerably smaller than the 3,000 to 5,000 stipulated in the general guidelines for cluster formation. However, it was impossible in this case to enlarge the group.

(ii) Rationalisation

Table 2 shows a wide range of pupil:teacher ratios - from 42:1 in Kudawe KV to 12:1 in Nilwala KV. To some extent, the low ratios arose from the need to site schools within reasonable walking distance of children's homes, and were unavoidable. However scope for rationalisation existed in some schools. In particular, four strategies were pursued:

* The cluster board pointed out that the nine students in Grades 6, 7 and 8 in Liyandawela KV could be transferred to Gileemale MV or Kudawe KV.
* The board also proposed that Gileemale MV should only offer arts subjects at Advanced Level, and that Palabaddela Sri Pada MV should only offer science subjects.
* Katawela PV had never had an English teacher. The cluster head found that one of his staff who had studied in the English medium was from Katawela village and was coming all the way to the core school each day. She was persuaded to work two days each week at Katawela PV. In this way, the school secured the services of a graduate teacher, which would not normally have been possible at the primary level.
* Kudawe KV had no geography teacher, even though geography was a compulsory component of the Ordinary

Level syllabus. The cluster head lent Kudawe KV a core school geography teacher once a week.

(iii) Extra Curricular Activities

For sports activities, the entire student population of the cluster was divided into three houses. Competitions were then arranged. Pupils built up loyalty to their houses, and this helped promote unity within the cluster. The pupils' horizons were expanded through the contact with other schools, and the standard of sporting activities was improved by competition. The innovation was particularly valuable for the smaller schools, which also gained access to the core school's training facilities.

Proposals were drawn up for a Sinhala Literary Day and for an English Day, encouraging participation of all schools on a similar basis.

(iv) Improvement of Physical Facilities

Following the example of the core school, many of the cluster members made major improvements to their buildings and gardens. The change in Liyandawela PV was particularly noteworthy, for it had been a neglected school and was completely transformed. The improvements in facilities were accomplished entirely by community self-help, using local resources. Formation of the cluster helped revitalise community interest.

(v) Other Measures to Improve Quality

The cluster also organised supplementary classes for pupils about to sit examinations. Classes for the Grade 5 examination were held at Gileemale MV, Nilwala KV and Palabaddela Sri Pada MV. In addition, Ordinary Level classes were organised at the core school, where specialist teachers were more readily available. These classes were particularly

appreciated by pupils of Kudawe KV, who made the 42 miles return journey each time at their own expense.

(b) Debarawewa Cluster

Debarawewa is in Hambantota Region, in the far south of the country. Cultivation of rice is a main local activity, but the region is thinly populated and rather poor. Although the land is flat, public transport systems are not well developed. Because of the sparse population, schools are widely spaced. And because of the poverty of the region, it is hard to recruit good teachers.

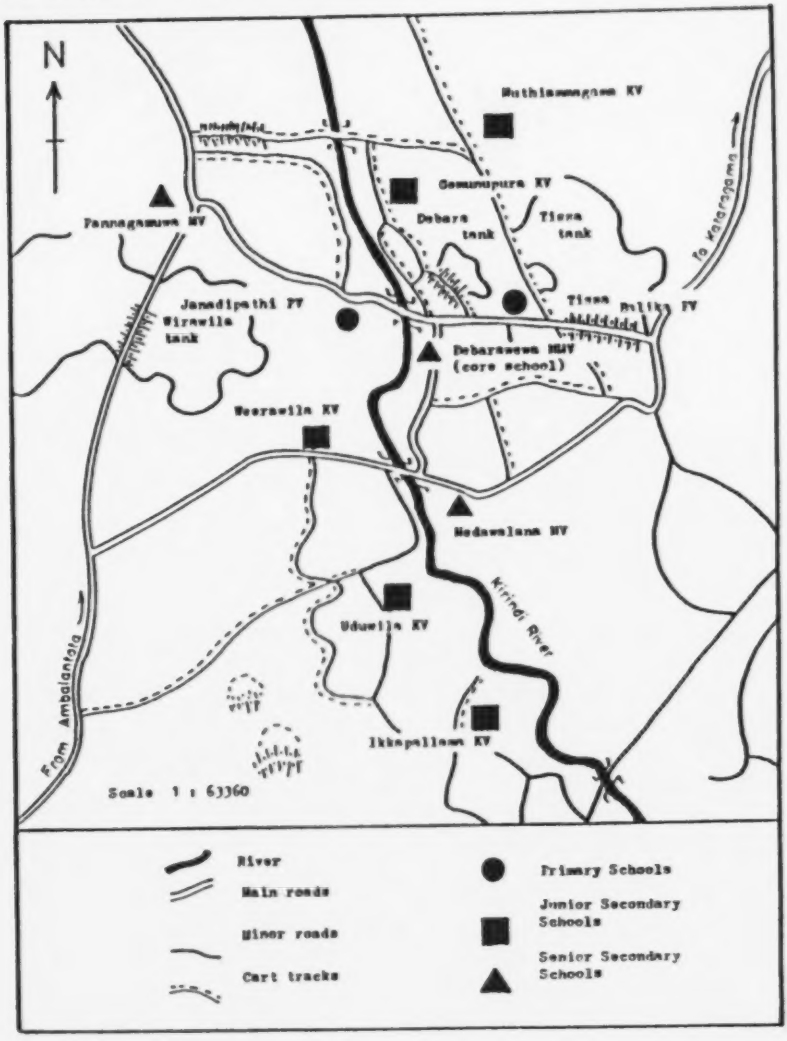
(i) The Composition of the Cluster

This cluster has 10 schools: one MMV, two MVs, five KVs and two PVs. It has a total enrolment of about 6,000. As Table 3 and the accompanying map indicate, the majority of member schools are two to three miles from the core school. Only Muthiammagama KV and Gemunupura KV are not served by public transport.

Table 3: School Characteristics, Debarawewa Cluster, 1982

Name	No. of Pupils	No. of Teachers	Pupil:Teacher Ratio	Miles from Core School
Debarawewa MMV	1,183	46	26:1	
Parnagamuwa MV	961	23	42:1	2.2
Gemunupura KV	509	14	36:1	1.2
Muthiammagama KV	214	3	71:1	2.5
Janadipathi PV	490	11	45:1	0.5
Weerawila KV	494	14	36:1	2.0
Medawalana MV	890	20	45:1	2.2
Uduwila KV	407	11	37:1	2.7
Ikkapellana KV	302	13	23:1	5.5
Tissa Balika PV	377	8	47:1	1.0

The Schools in Debarawewa Cluster



(ii) Rationalisation

Like Palabaddela Sri Pada, in 1982 the schools in Debarawewa school cluster had widely differing pupil:teacher ratios. Table 3 shows that the range was from 71:1 in Muthiammagama KV to 23:1 in Ikkapallama KV. In the former, only three teachers were available for a full school ranging from Lower Kindergarten to Grade 5. When new teachers were posted to the school, the harsh environment discouraged them from staying.

To help solve this problem, the 44 students in the Muthiammagama KV junior secondary section were transferred to Gemunupura KV and Debarawewa MV. This was a difficult decision because it downgraded the school from junior secondary to primary. Credit is due to the Cluster Board for being able to persuade the community that the change was necessary.

(iii) Improvement of Teaching

The core school, with participation from the member schools, organised seminars and demonstration classes for teachers of different grades and subjects. About 200 teachers participated in these activities. It was pointed out that this model could be used for future in-service training work.

(iv) Improved Management

In an effort to improve school management and administration, this topic was made a focus of discussion during the Principals' meetings. Particular attention was given to:

- use of organisation charts to streamline administration and to indicate the responsibilities of specific individuals,
- student discipline,
- preparation of lesson plans, and
- preparation of timetables.

(v) Extra Curricular Activities

As in Palabadella Sri Pada, the creation of the Debarawewa

school cluster provided opportunities for sports competitions. For some of the schools, this was the first time for such an activity. In contrast to Palabaddela Sri Pada, however, the children were not grouped into houses.

(vi) Improvement of Physical Facilities
A tree planting campaign was organised to improve Uduwila KV, and the community built a well at Ikkapallama KV. These activities could have taken place without the cluster, but they were promoted by exchange of ideas and comparison of schools. In 1982 the cluster drew up lists for construction and government aid, giving priority to the most needy schools.

(vii) Other Measures to Improve Quality
The main additional measures to improve quality were:

- The other schools in the cluster gained access to the dancing teacher and physical training instructor attached to the core school.
- Supplementary classes for pupils sitting the Grade 5 examination were organised at Janadipathi PV.
- Supplementary classes for Advanced Level students were organised at Debarawewa MMV.
- Teaching schemes were shared.
- Common examinations were held for all schools in the cluster.

The core school was the centre for most activities, but Janadipathi PV was assigned particular responsibility for development of primary education. This has made it possible to share leadership. Janadipathi PV is centrally located, and has become an excellent school.

4. Achievements and Constraints
Clusters in Sri Lanka are a recent innovation, and have yet to withstand the test of time. However it is already

possible to comment on some achievements and constraints.

(a) Achievements

The cluster scheme was launched in a tense political atmosphere. Many people opposed it, either on genuine grounds or as a convenient excuse for political action. In the years following its launch, moreover, Sri Lanka experienced escalating ethnic violence. This was not an auspicious environment for such a major reform; and this fact makes the many successes of the scheme all the more remarkable.

Although only two case-studies have been presented in detail, their features parallel those of many other clusters. It is important to note that:

- At least in these cases, the cluster scheme did *not* result in a concentration of resources in the core school at the expense of the rest. That had been a widespread fear when the scheme was launched. A great deal, of course, depends on the personalities both of the cluster heads and of their colleagues; but experiences so far have been encouraging.
- Many small schools have obtained an injection of resources which they would not otherwise have had.
- Some small classes have been rationalised.
- Teachers have been deployed more effectively.
- Clusters formed with schools serving different racial, religious and language groups have promoted a slow but healthy process of integration.

Some circuit education officers have also reported a 'spill-over effect', i.e. that schools which as yet have not been formed into clusters have expressed interest in grouping.

(b) Constraints

At the same time, several constraints must also be recognised:

Appointment of Core Heads

- When the clusters were first launched, the core school

principals became cluster heads, irrespective of their grades and abilities. Sometimes the cluster headquarters were changed to secure good heads, as at Palabadella Sri Pada; but this was not always possible. In other cases the core school head was more junior than some of the heads of member schools, and authority conflicts arose.

The appointment of good heads is particularly important during the early years because the entire innovation will be judged by its early successes and failures. Sometimes it is necessary to transfer staff to ensure appropriate postings. But too much transfer causes confusion, and threatens cohesion.

* While the cluster project was getting started, conflicts sometimes arose between the Circuit Education Officers (whose posts had not yet been abolished) and the cluster heads. Relationships required careful handling. CEOs were likely to oppose clusters if they did not see roles for themselves in the new system.

The Roles of Principals within the Cluster

* Although the policy documents required cluster heads to respect the autonomy of individual school principals, operations did not always move smoothly. Some principals opposed the innovation because they resented the loss of control which it implied.
* Principals with political influence did not feel that the clusters would give their schools resources that they did not already have. Indeed, they anticipated that the grouping would threaten their privileges. At the same time, cluster heads who were influential and close to the political leadership sometimes adopted authoritative stances that were resented by the teachers and member principals.

Skills and Coordination at Higher Levels

* When designing clusters, the professional and leadership skills of the administrative officers were of

obvious importance. While many personnel had long experience of pedagogical matters, however, few had experience of such techniques as school mapping and analysis of enrolment trends.

* To improve decision-making, planning units were needed at the regional level, to help decide on the initial formation of clusters and to coordinate development of the broader picture.
* In the early years, confusion arose because senior officers in the Ministry of Education were unfamiliar with the new routes of communication and authority implied by the cluster system. Also, some actively distrusted the clusters' ability to make good decisions.

Nonformal Education

* Although the initial document proposed that clusters would also become bases for nonformal education, this did not tend to happen. Experience in other countries certainly shows that formal and nonformal education can be at least partially integrated. However, the scope and nature of integration needs to be carefully thought out in each case. Integration demands skilled and committed personnel, and it may not be wise simply to attach nonformal education to a formal school system that has not been prepared for the reform.

4. Thailand

In contrast to Sri Lanka, the school cluster system in Thailand operates only at the primary level. The country has approximately 31,200 primary schools, which are grouped into 4,100 clusters. Every school is a member of a cluster, which is a formal unit in the administrative hierarchy. The size of clusters is chiefly determined by the number of appropriate schools in a neighbourhood. Some clusters have over 11 schools, but others have fewer than six.

The origins of the system partly lie in a plan for 'lead schools' launched in 1950. Teachers in well-equipped schools were encouraged to work with staff of less fortunate schools on a voluntary basis to help solve their problems. Each cluster was managed by a committee of principals and school directors. The system grew rapidly, and by 1960 3,512 clusters covered almost every primary school in the country. The system was formalised in 1980 with the passage of a new education act.

The account presented here is chiefly based on a number of local research studies and on the work of Kunarak & Saranyajaya (1986). It examines (1) the structure of the system, (2) the ways clusters operate in practice, and (3) possible future developments.

1. The System

(a) The Functions of Clusters

Official regulations set out the following functions for each cluster:

Planning

1. formulating school improvement plans in line with the policies of the National, Provincial and District Primary Education Committees,
2. recommending annual budgets for schools in the cluster,

3. considering and approving plans for school improvement and for staff development in the cluster.

Implementation of Projects

4. serving as pivotal points for various activities both among schools in the cluster and between schools and communities,
5. setting work schedules, conducting surveys and embarking on activities to help achieve universal primary education.

Maintenance and Improvement of Quality

6. monitoring teachers' annual performance and conduct,
7. recommending teachers for annual promotion,
8. evaluating the performance of schools.

Other

9. carrying out other activities as specified by the provincial and district primary education committees.

(b) Organisation

(i) Composition of Committees

Each cluster is run by a committee comprising all principals of member schools, plus several ordinary teachers. The principals are 'ex officio' members, i.e. hold membership *because* they are principals; but the teachers are elected. No school can send more than one teacher, and the total number of teachers must not exceed half the total number of principals.

Whereas principals are committee members for as long as they hold the posts of principal, the chairpersons and elected members are normally appointed for two years. They may be re-appointed for a further two years, but they may not hold office for more than two consecutive periods.

(ii) Headquarters and Staffing

The headquarters of each cluster is determined by its com-

mittee members. They are instructed to bear in mind two factors:

* The headquarters should be in a central location, or have good routes of communication.
* At least two rooms should be available to become a resource centre.

The resource centre is supposed to contain library books, visual aids, duplicating machines and other materials to be shared among the member schools.

The government does not expect clusters to appoint full-time staff. Committees often place their headquarters in the largest school, because large schools are often able to offer secretarial help.

(c) Management

The clusters operate under the leadership of their committee chairpersons. Each chairperson has six main duties:

* at least once a month, arranging cluster committee meetings and reporting to the Office of District Primary Education,
* supervising all schools within the cluster, and visiting them at least once a year,
* gathering information and submitting it to the Office of District Primary Education according to specified dates,
* presiding over cluster meetings on teachers' promotion, and reporting to the District Primary Education Committee,
* acting as a coordinator within and outside the cluster, and
* carrying out other activities as required by the District Primary Education Committee.

To help fulfil functions, many clusters establish sub-

committees. Regulations state that at least half the committee or sub-committee members must be present before any decisions are taken. This is to ensure that all decisions are taken by a majority.

(d) Finance

Cluster expenses are subsidised by the Office of the National Primary Education Commission (ONPEC). In 1986, B15.1 million (US$584,000) was allocated to recurrent expenditure, and B12.5 million (US$480,000) to 'material' costs. Individual clusters received B3,650 (US$140) for recurrent expenses, and B3,000 (US$115) for material expenses.

Table 4 shows the ONPEC budget allocation for each cluster during the years of the 1982-86 education plan. It indicates that between 1982 and 1984, large clusters were allocated greater amounts than small ones. However, it was decided that in 1985 and 1986 the allocations should be uniform. The source from which the table was drawn did not indicate the reason for the change. However, two contrasting arguments may have been influential:

Table 4: Budget Allocations to Clusters, 1982-86 (Baht)

	-----Recurrent Allocations-----				------Material Allocations------			
	Total	Cluster Size*			Total	Cluster Size*		
Year	Allocation	Large	Medium	Small	Allocation	Large	Medium	Small
1982	11,084,600	3,000	2,500	2,300	5,773,200	1,520	1,425	1,320
1983	11,464,500	3,200	2,800	2,500	6,083,400	1,600	1,500	1,400
1984	11,576,200	3,200	2,800	2,500	8,181,200	2,100	2,000	1,900
1985	14,469,000	3,500	3,500	3,500	11,988,600	2,900	2,900	2,900
1986	15,187,650	3,650	3,650	3,650	12,483,000	3,000	3,000	3,000

* large clusters have 11 or more schools; medium-sized clusters have 7 to 10 schools, and small clusters have 6 or fewer schools.

Source: Kunarak & Saranyajaya (1986, p.34).

- On the one hand, large clusters have more institutions (and therefore, depending on the size of the institutions, more pupils and staff) over which to spread resources.

- On the other hand, one reason why many clusters are small is that there are few schools in the area. Staff therefore have to travel longer distances to attend meetings, and this fact raises unit costs.

The size of these allocations may be compared with per pupil expenditures. Whereas the 376 schools that Kunarak & Saranyajaya surveyed in 1985 had average per pupil expenditures of B5,000, the 1985 combined recurrent and material allocations per cluster were B6,400, i.e. just over the cost of one pupil. This does not seem a very large allocation, especially since many clusters had over 11 schools and each school could have had over 350 pupils.

2. Operation of Clusters in Practice

The mere facts (a) that so many clusters were set up on a voluntary basis in the 1950s and 1960s, and (b) that the majority of them survived, is evidence that the clusters were seen to perform a useful role. Research studies have confirmed this fact. In a survey of 623 schools by Kunarak & Saranyajaya (1985), for example, teachers rated the work of clusters as follows:

Academic Affairs	Good
Facilities	Outstanding
Personnel	Fair
Pupils' Activities	Good
Management & Finance	Outstanding
School-Community Relations	Fair.

The researchers observed a positive correlation between cluster activity and academic achievement. They noted, for

example, that many cluster committees had arranged for circulation of staff within clusters, which had acted as a form of in-service training and had helped prevent teachers from getting stale. Another example of cluster work is the circulating library project highlighted in the box on the next page.

Research also highlighted weaknesses in the system, however. For example, Sudtasan (1983) suggested that few clusters were able effectively to recommend teachers for promotion. Most people, he said, felt that recommendations for promotion were the work of the supervisors (inspectors), and that the roles of the cluster committees were not clear.

Similar comments were made by Kunarak & Saranyajaya (1986). The three main problems, they suggest, arise from attitudes, resources and cluster size:

Attitudes

* As in Sri Lanka, the authority of clusters was not fully recognised by officers at higher levels. Systems for planning and staff promotion had existed long before the clusters were created, and the people who operated that system were not keen to share their powers - especially with a body whose competence they did not trust.
* Because the clusters were widely perceived to have little authority, people were not always enthusiastic to become committee members or to attend meetings. The job of chairperson was sometimes seen as a 'pseudo post in a pseudo organisation'.
* The fact that cluster committees lacked expertise made it harder for them to assert themselves. Even if the rest of the system had been keen to give the clusters authority, their lack of expertise (at least to begin with) would have severely obstructed their effectiveness and credibility.
* Chairpersons who were junior staff lacked authority over senior colleagues, and sometimes found it hard to gain support.

The Tin-Box Library Project: An Example of Shared Resources

The ways that resources can be shared may be illustrated by the tin-box library project operated by one cluster in Muang District.

This cluster has seven schools. Accordingly, the authorities began by purchasing seven tin boxes. They then purchased a selection of library books for each, and devised a rota through which each school would have one box for 15 days. At the end of each 15 days, each school was responsible for passing on the box to the next.

Evaluation showed several benefits.

- The boxes proved durable, and protected the books effectively from sun and rain. Each box cost only 80 Baht (US$3.20).
- The system was popular with schools, enabling them to receive books that they would not otherwise have had.
- Some of the books were also borrowed by others in the community. They therefore helped the broader goals of community development.

The chief problems were:

- Schools found it hard to issue the books, allow the pupils to read them, and then collect them in within 15 days.
- Because the system worked by rotation, schools could not simply exchange boxes. School B had to take its box to School C, while School C took its box to School D. School B's replacement box was supposed to come from School A.
- Schools could not be sure of opportunities to transport the boxes on the days required by the schedule.
- The number of reading materials was insufficient to meet demand from either the pupils or the general public.

These problems were not insuperable, however. The committee decided to (i) double the time that each school could have a box, (ii) replace the rotating system by collection from the core school, and (iii) purchase one extra box of books. In the new system, each school could bring its box back when ready and pick up a new one. Rigid adherence to the schedule then became less important. Each school could always possess one box. The existence of the spare box meant that there was always one ready for collection.

The only difficult problem was to meet demand. Increase in the number of books in each box would have made the boxes too heavy easily to transport; and in any case the cluster had no extra resources. If resources later become more plentiful, however, it would not be hard to double the number of boxes in circulation.

Resources

- Although the clusters were allocated some finance by the central authorities, their resources were inadequate. Very little money was available for travel among the schools.
- There were sometimes conflicts of control. The fact that regulations prohibited any individual from being chairperson for more than four years increased the likelihood that the chairperson would not be the head of the school in which the resource centre was sited.

Cluster Size

- Clusters with more than seven schools encountered major problems of coordination.

3. Possible Future Developments

To help reduce problems, the authorities have already taken several major steps. They have:

- prepared a simple booklet to explain the purposes and powers of clusters,
- organised training workshops for cluster chairpersons, and
- initiated plans for increased support through a set of Provincial Primary Education Resource Centres.

These moves are important, for many cluster committees need to be strengthened in order to do their jobs effectively and gain respect.

In addition, Kunarak & Saranyajaya recommended some structural changes to improve the operation of the system. The first does not seem feasible or necessarily desirable: in order to spread workloads, they recommended each cluster secretariat to be given at least one permanent, salaried officer. This would greatly increase the costs to the government, and it is doubtful whether there would be enough work to occupy the officers full-time. An alternative would

be to reduce the teaching loads of the cluster chairpersons and secretaries, but even this does not seem to be absolutely necessary.

However, two other recommendations seem both sensible and relatively easy to implement:

- Allocation of finance to clusters for further allocation to schools (instead of the current system in which schools are directly allocated their budgets) would further strengthen the role and authority of the cluster.
- Because the system in which only half the schools elect teachers' representatives to the committees is unsatisfactory, either teachers' representation should be abolished altogether or, preferably, every school should send a teacher.

Modifications such as these could considerably strengthen the system. The basic model has already proved its worth, and the need now is for ongoing attention to implementation.

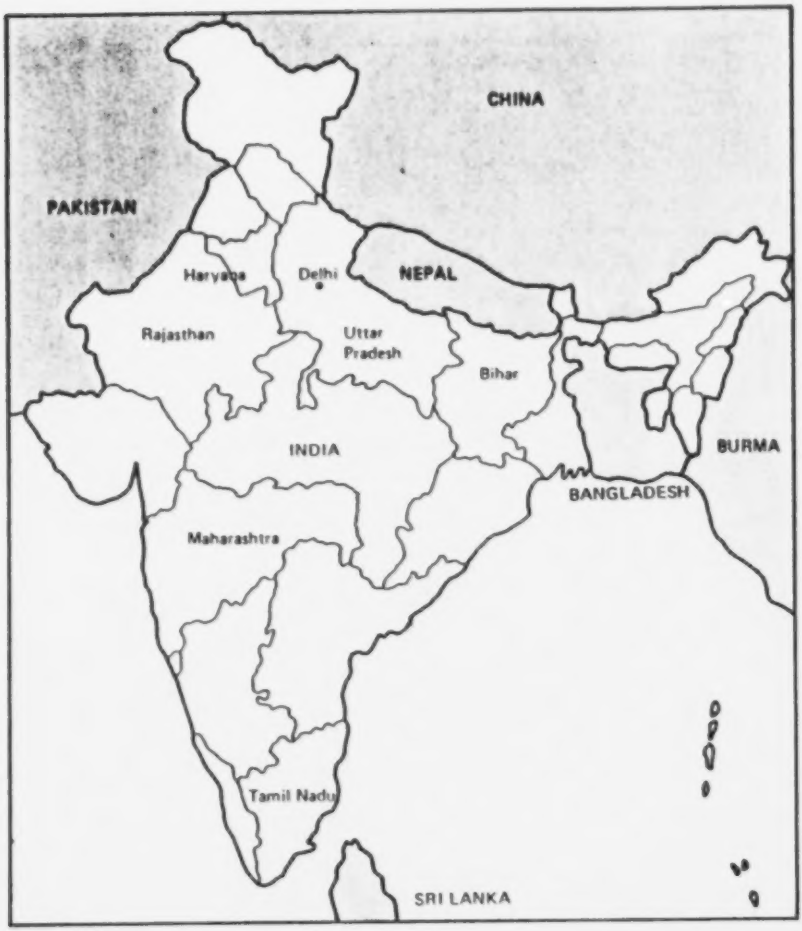
5. India

School complexes (as they are called in India) were first recommended by an education committee in Maharashtra State in 1948. No action was taken, however, and in 1966 the recommendation was repeated by a national government Education Commission. Some state governments responded in the late 1960s and early 1970s, though with different models and varying degrees of success.

This account, which is chiefly based on Singhal (1983), describes the schemes in six states. For ease of reference, the projects are summarised in Table 5.

Table 5: School Complex Projects in India, by State

State	*History and Scope*
Bihar	Launched in 3 districts in 1975, but little political support.
Haryana	Launched 1969 with new push in 1974. Main focus on teacher upgrading. Many complexes quite successful.
Maharashtra	600 complexes set up in early 1970s. By 1982 expanded to 1,200 complexes and 8,500 schools.
Rajasthan	71 complexes launched 1967; rose to 168 in 1972. New thrust in 1972 following report of shortcomings. No evaluation since then.
Tamil Nadu	Initiated late 1960s; by 1982 2,000 complexes existed.
Uttar Pradesh	Confined to five development blocks: very small.



1. Bihar

In 1975, the government of Bihar introduced complexes in three of its 28 districts. The complexes were made formal units in the administrative hierarchy of those districts. Their duties were:

* preparation of annual plans,
* intensive, regular and surprise inspections by education officers,
* panel supervision of teaching, by subject group,
* organisation of student activities,
* organisation of Parent-Teacher Association meetings at the complex level,
* conduct of examinations at the complex level, and evaluation of schools on the basis of results,
* processing of requests for casual leave, and
* preparation and collection of pay-bills.

However, the scheme is said to have lacked adequate preparation, and in 1977 a new Minister of Education mentioned that the system might have to be abolished. The Minister's statement removed further support from an already shaky system, and although Sinha's 1981 evaluation noted that 32 complexes still existed, he added that they were "just limping".

At the same time, some achievements were reported. Supervision of teachers was said to have increased, which in turn improved teachers' punctuality and techniques, and had some impact on pupil achievement. And resources were said to be used more efficiently: library books were used more frequently, laboratories shared, and teachers used as substitutes when colleagues were away.

Nevertheless, Singhal's conclusion (1983, p.9) was that "owing to lack of political will and indecision about the continuance of the scheme, the future of the school complexes in the State has been rendered bleak".

2. Haryana

School complexes were introduced in Haryana in 1969-70. Six higher secondary schools in all districts except one were made core schools, and middle and primary schools within a radius of eight kilometres were attached to them. By 1973, 36 complexes were in operation.

In 1974 the project was modified and greatly expanded. Particularly with the focus of teacher upgrading, 909 high and 'Junior Basic Training' schools were made in-service centres. Each served primary and middle school teachers within a radius of eight kilometres. A special training course was organised and attended by 542 of the 909 heads of central schools.

The scheme envisaged that about 35 primary school teachers would go to each central school on the last working Saturday of every month. Many institutions organised demonstration lessons and various kinds of competition for the children. A school-complex bulletin, *Prathmik Adhyapak* was distributed free of charge to every primary school, and often formed the focus for discussion. Topics included:

- the objectives of universal primary education,
- population education,
- work experience in schools,
- institutional planning,
- nonformal and adult education,
- the effective use of textbooks, and
- production of learning aids.

In 1975, the scheme was rationalised. Central schools with fewer than 12 primary schools attached to them were dropped from the list, thus bringing the number of central schools down to 841. Although performance in some complexes was disappointing, in 1979 816 of them were said to be active.

On the financial side, every complex in 1974-75 was given a non-recurring grant of Rs.500 (US$32) per annum. This was later reduced to Rs.250, but District Education Officers were given Rs.15,000 to purchase books for complexes and Rs.1,000 to support innovative projects. Production of the bulletin cost about Rs.90,000 each year.

Singhal (1983, p.14) states that:

Evaluation of the Haryana Scheme

The Haryana State Institute of Education evaluated the impact of the school complex scheme in 1979. It concluded that:

> *... in 94.8% of the central schools in the state, modern demonstration lessons are being given by the experienced teachers of the school complex. Lessons are invariably followed by discussions with a view to giving the necessary feedback and to discuss their administrability and practicability in actual classroom situations.*
>
> *In 89.5% of the central schools, teachers associated with the school complexes do read the bulletin* Prathmik Adhyapak, *and this is supplemented with lively and stimulative discussions on different topics; 82% of the central schools have professed to assist the teachers of participating schools in the enrichment of their subject contents.*
>
> *Art and recreation activities including work experience and socially useful productive work, health and physical education and moral education also figure as subjects of discussion in the complex meetings.*

The report was critical of some specific complexes which, it said, were "lifeless and uninteresting". However, its overall assessment was very positive.

in the complexes headed by weak heads and dominated by aggressive unionists, the teachers misuse the platform by making disparaging references, and fritter away their energy in hurling fantastic and motivated charges

> against the headmasters and officers and bring the meetings perilously close to chaos.

However, these appear to be a small minority. He adds that:

> there are quite a good number of enthusiastic heads with imagination and academic interest who feel that this is an important and useful activity.

3. Maharashtra

Although an education committee recommended school complexes in Maharashtra as far back as 1948, they were not actually introduced until the early 1970s. Six hundred complexes were then established within a short period of time, and a further thrust in the late 1970s raised the number to 1,200.

Although some complexes only grouped primary schools, the majority grouped both primary and secondary schools. Each complex had an average of seven schools. At the end of 1981, the scheme catered for 14% of all primary school children and 10% of all secondary school children. Other statistics are given in Table 6.

The initiators of the second thrust argued that: "isolation is a curse to a number of schools which calls for humane consideration and concerted action. External inputs or rapport are all that has been wanting all these years".

Accordingly, they called their campaign RAPPORT. This was an acronym standing for:

LET US
- Rise from slumber early,
- Assess ourselves and our performance critically,
- Plan our activities thoroughly,
- Proceed on right lines firmly,
- Organise ourselves from within and without quickly,
- Reach the community patiently, and
- Trust our own potential and that of out colleagues, teachers and pupils fully

Table 6: Participation in the Maharashtra School Complex Scheme, 1981

Complexes with Secondary Schs as the Centre	Complexes with Primary Schs as the Centre	Total Number of Complexes	Schools		
			Secondary	Primary	Total
746	376	1,122	746	7,422	8,168

Teachers			Pupils		
Secondary	Primary	Total	Secondary	Primary	Total
12,296	32,043	44,339	337,876	1,198,338	1,536,214

Note: Statistics do not include Sindhudurg District or some schools in Marathawada Region.

Source: Singhal (1983, pp.27, 28).

The initial premise about the need for rapport rather than support (instead of both rapport *and* support) might seem rather questionable, and the acronym might appear rather gimmicky. However, the campaign had the personal support of the Director of Education, and had a big impact.

Three of its distinctive features were:

* Individual education officers volunteered to become 'godfathers' to specific complexes. This role was outside the normal frame of their duties.
* The project specifically focused on weak schools. Even the central schools were selected because they were weak. Leadership therefore came more from the education officers than from the principals of the central schools.
* Cluster membership was voluntary.

Case-Study: Charholi School Complex

Charholi Complex, in Maharashtra State, was launched in 1977. It has one high school (which has been made the central school), two elementary schools, and six primary schools. One of the primary schools has only one teacher, and two have only two teachers. None of the schools is more than six kilometres from the central school.

Every year, the complex committee grades each member school on its environment, management, educational progress, supervision, and links with the community. The grading helps diagnose problems and assess progress. The scale has five points (A to E). In 1977, three schools scored D and six scored E. But by 1981 four schools scored B, four scored C and one scored D. This reflected improvements caused by the complex activities.

Particularly notable achievements, contributing to and resulting from the schools' upgrading, were:

- increase in the Grade 1 enrolment rate from 85% to 100%,
- reduction in the Grade 1 drop-out rate from 56% in 1976 to 12% in 1980,
- reduction of repetition from about 400 pupils a year to about 100 pupils a year,
- improvement of the pass rate in the School Certificate examination from 21% in 1976 to 67% in 1980, and
- marked improvements in buildings, school gardens and other facilities.

One instrument for improvement has been a teacher self-evaluation project. Through organised self-evaluation, staff have become mor aware both of shortcomings and of strategies for improvement.

In addition, organisation of school projects has effectively mobilised community support. Whereas in 1975 only Rs.219 were contributed by communities, in 1980 contributions reached Rs.1,401; and in 1981 - a year of particularly notable activity - contributions totalled Rs.542,002.

Charholi complex cannot be described as typical: it has been personally supervised by the Director of Education, and has been designated a model for the state. Nevertheless, it does indicate the extent to which the complex idea can promote improvements.

* The emphasis was on non-monetary inputs. Even when teachers came for meetings, they had to meet costs from their own pockets.

Strong emphasis was placed on periodic grading of schools and self-assessment of teachers. Singhal (1983) presents figures suggesting that, at least in some cases, the scheme had strongly beneficial results. For example, he presents a specific case study of Charholi School Complex, and indicates improvements in school facilities, pupil attendance and pupil performance.

However, the fact that much of its success has arisen from the personal initiatives of the Director of Education is both a strength and a weakness. If the scheme is not institutionalised by the time the director leaves, it is likely to collapse.

The fact that the scheme relies on rapport rather than financial and material inputs is also both a strength and a weakness: it is immune from budgetary cuts, but is totally reliant on the enthusiasm of individuals. Experience elsewhere shows that such interest can be very hard to maintain.

4. Rajasthan

The Rajasthan scheme was launched on a voluntary basis in 1967. Inspectors and individual school heads were allowed to propose institutions as central schools. Each complex normally had three to five secondary schools and up to 25 primary schools. The education authorities stipulated that no teacher should be more than one hour from the central school. Separate complexes were permitted for girls' schools, and no headteacher was forced to join a complex.

The initial number of 71 complexes rose to 168 in 1972. A survey in 1971-72 found that:

* 53% of complexes had prepared plans,
* 47% had appointed subject committees,

* five had shared laboratory equipment or library books,
* 64% had arranged demonstration lessons,
* the headmasters and senior teachers of 54% visited the complex members, and
* 56% had arranged common examinations.

This seems a notable achievement, though the authorities had hoped for more. Accordingly, the Department of Education embarked on another thrust and issued detailed guidelines. According to Singhal (1983, p.11), no further studies have been made to assess impact.

5. Tamil Nadu

Tamil Nadu's scheme was founded in the early 1970s as a pilot project in every district. It was considered worthwhile, and was expanded. By 1982 there were over 2,000 complexes.

The standard model was one high school, three or four middle schools, and 10 to 20 primary schools. In general, its aims are similar to schemes in other states. However, detailed information on performance is hard to obtain.

6. Uttar Pradesh

Although Uttar Pradesh is the state with the largest population, its school complex scheme is very small. In 1982 it was confined to just five development blocks with about 20 complexes altogether. Each complex consisted of 10 to 15 primary schools linked to a middle school.

The roles and strategies of the complexes were similar to those in other states. Among other functions, they were expected to:

- undertake censuses of school-going populations,
- set enrolment targets for each school,
- identify weak students in each school and decide on appropriate remedial action,
- set up laboratories in the central schools,

- organise demonstration lessons, and
- organise competitions, e.g. in art, handwriting and story-telling.

Summary

School complexes in India have two important roots: the recommendation of an education committee in Maharashtra State as far back as 1948, and a similar recommendation by a national education commission in 1966. Only in the late 1960s and 1970s was there any action, however.

The account presented here highlights developments in six states. It shows a wide variation in models and in coverage. Although in most cases the positive aspects have to be balanced by shortcomings, the balance remains positive. The complexes seem generally to have been welcomed by the teachers and to have helped achieve both the quantitative and the qualitative goals of education. The schemes in Maharashtra and Tamil Nadu seem to have been particularly worthwhile.

6. Peru

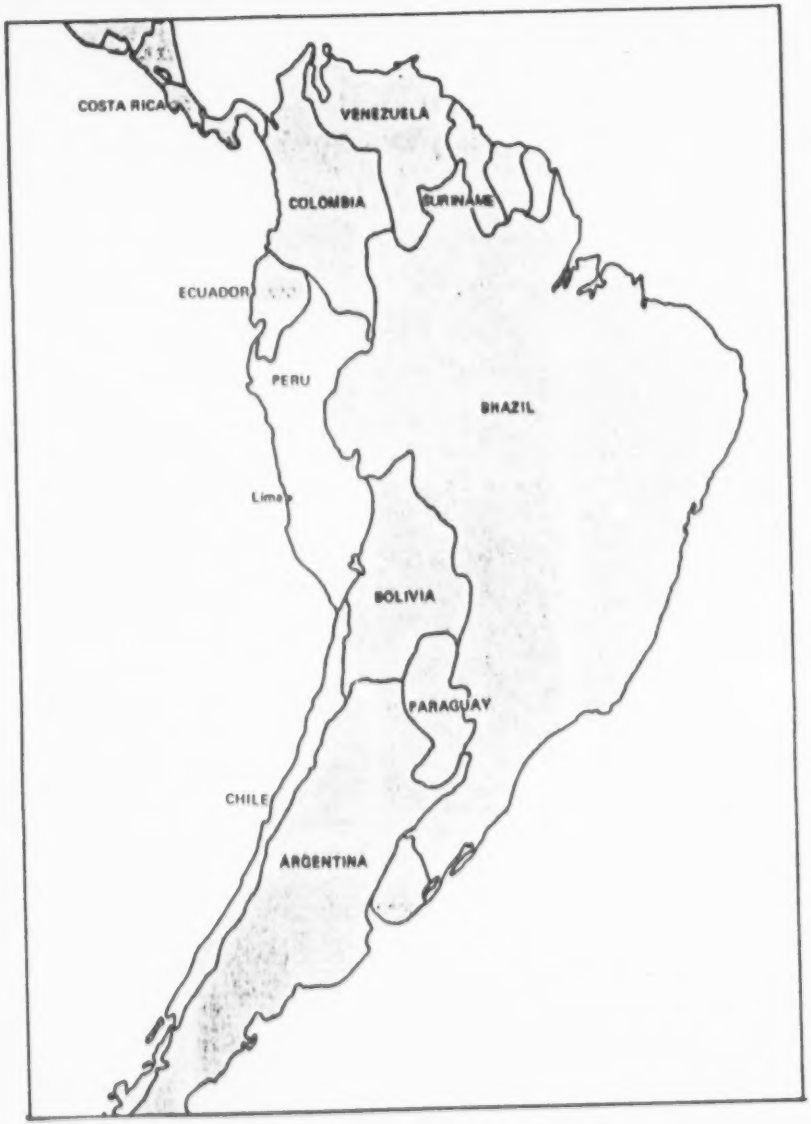
As part of a sweeping educational reform launched in 1972, the Peruvian government established a set of school clusters known as 'Nucleos Educativos Comunales', or simply 'nucleos'. Peru's nuclearisation efforts have been among the world's most ambitious and best known. Chiefly for political reasons, the long-term impact has so far been limited. However, much can be learned from the Peruvian experience about implementation strategies and pitfalls to be avoided.

This account first outlines an early scheme launched in 1945, before moving to the more important initiatives launched in 1972. It then comments on the latter's aims, structure, and operation in practice.

1. The First Project

The first nuclearisation project was launched after an intergovernment meeting about Lake Titicaca in 1945. The lake is shared by Peru and Bolivia, and the two governments wanted both to develop the region around it and to provide special support for the indigenous population. The meeting proposed 'Nucleos Escolares Campesinos' [which was a slightly different name from the later nuclearisation initiative], modelled on a famous institution in Bolivia called Warisata. That school had been founded in 1931, and was the first in the continent to employ the nuclear concept.

The 1945 meeting was convened on the initiative of advisers from the USA, and the nuclearisation programme was heavily supported by external funds and expertise. Each nucleo had a six-grade central school and a set of three-grade satellite schools. The project incorporated adult as well as conventional schools for children. Over the years, 73 nuclei containing 2,426 schools were created.


COSTA RICA
VENEZUELA
COLOMBIA
SURINAME
ECUADOR
PERU
BRAZIL
Lima
BOLIVIA
PARAGUAY
CHILE
ARGENTINA

In 1962 the United States government withdrew its inputs, and this caused a resource and management crisis. The next section shows that the scheme was later revived by the Peruvian authorities with their own resources, but the problems of the 1960s exemplified the fragility of many projects that are chiefly conceived and supported by external agencies.

2. The National Scheme

(a) Philosophy and Aims

In 1968, a new revolutionary government came to power. It perceived nucleos as a way to promote educational reform and local participation in decision-making, and in 1972 revived them on a nation-wide basis. It was a massive programme, and is the focus of the rest of this chapter.

The government's premise was that the education system must create 'the new Peruvian man in a new Peruvian society'. This required a change of attitudes and values which, the government felt, could only be brought about through 'conscientisation'. This was defined in the 1972 law as an:

> educational process whereby individuals and social groups gain a critical awareness of the historical and cultural world in which they live, shoulder their responsibilities, and undertake the necessary action to reform it.

In turn, this implied:

* a high degree of participation in all types of decision-making,
* better links between schools and other development sectors,
* consciousness-raising through adult education, and
* reform of school curricula and structures.

Whereas cluster initiatives in other countries have

placed the greatest stress on the need for efficient use of resources, in Peru the greatest stress was ideological. Indeed, one person who was closely involved called the nuclearisation project "a Trojan Horse for ideological combat". By this he meant that nucleos appeared at first sight to be merely technical instruments for improved administration, but were in fact intended by the authorities to be major vehicles for political mobilisation.

(b) Structures and Functions

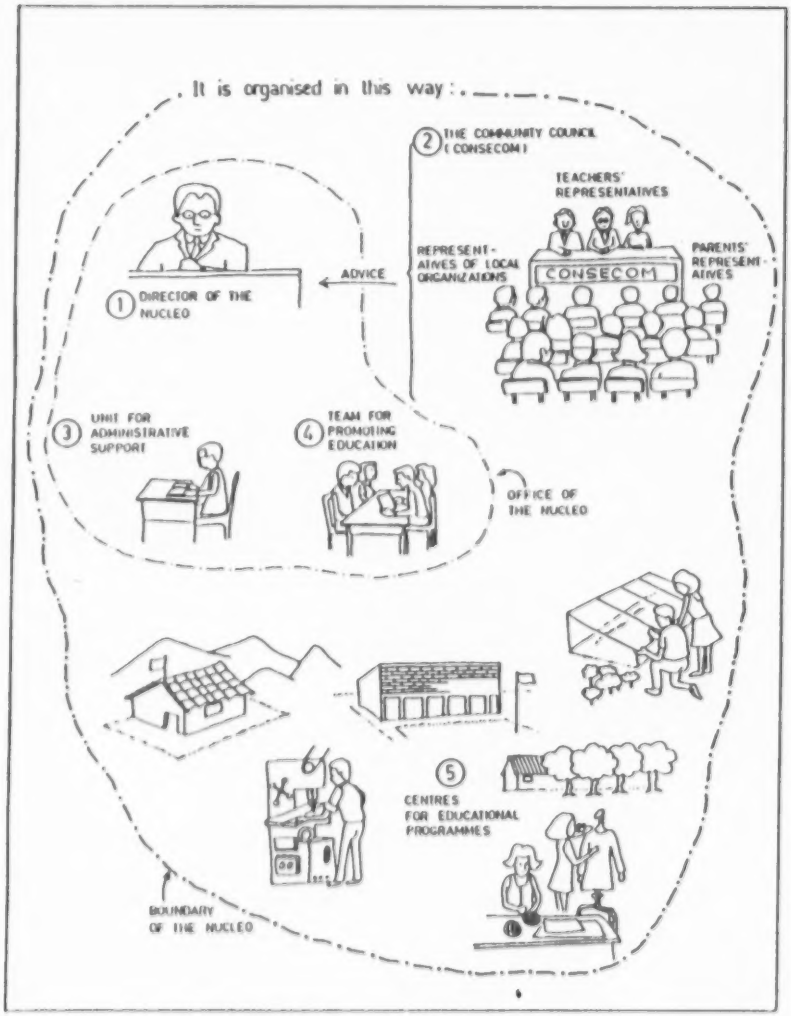
The project design envisaged that nucleo would have a core staff of a director, two or more curriculum specialists, and a planner. It was to be governed by a community council known as the 'Consejo Educativo Comunal', or CONSECOM. The council was to have power to select the nucleo director and guide his work. Each one was to be formed from representatives of the teaching profession (40%), parents (30%), and representatives of local organisations (30%).

According to the 1972 decree, the nucleos had four chief objectives:

i) to act as the main channel for community participation in educational matters,
ii) to modify programmes and curricula to fit community needs,
iii) to facilitate a joint effort by all government agencies at the local level, and
iv) to improve the quality of educational services by more efficient use of resources.

Each nucleo was expected to analyse its own situation and to prepare educational plans. The latter were to be submitted to Zonal Planning Offices, to form regional two-year plans. They were to cover adult and nonformal education as well as schools.

'How is the Nucleo Organised?': a page from a Peruvian handbook (translated from Spanish)



3. Achievements

Especially in its early years, the campaign had a substantial impact. Five aspects were particularly noteworthy:

a) *Formation of Nucleos.* After the 1972 decree, the programme went ahead with considerable speed. By 1975 there were 819 nucleos throughout the country. Formation of these nucleos within a short period of time, in areas of considerable geographic and social diversity, was a major organisational achievement.

b) *Situational Analysis.* As intended, once set up, the nucleos embarked on surveys to identify problems and solutions. To help in this, the Ministry of Education provided guidelines on the sorts of factors to assess. Educational maps were key instruments for survey of geographic distribution of resources.

c) *Community Participation.* Communities were involved in the initial establishment and delimitation of nucleos, in the subsequent situational analyses, and in the implementation of programmes. The contribution of the churches was particularly notable. Ruiz-Duran (1983, p.96) states that community participation was especially marked in the newly populated areas around the cities and in the remote rural areas. In Villa El Salvador, for example, which is mainly a shanty town providing labour for Lima, major programmes of curriculum reform and of education for out-of-school youth were embarked upon. Likewise, in the remote Jaen area, community participation facilitated the construction of 61 educational centres.

d) *Planning.* Following the situational analysis, nucleos embarked on production of written plans. The documents covered both short-term and long-term objectives, and both formal and nonformal education provision.

Iscuchaca: Success under Difficult Conditions

Iscuchaca is situated in Peru's great plain. A few rough roads criss- cross the area, but the peasants mostly travel on foot or on horse, and in the rainy season any kind of travel becomes almost impossible. The harsh climate makes even subsistence agriculture difficult to maintain, and recent years have seen extensive emigration.

Bizot (1975, p.47) described the Iscuchaca nucleo as "an excellent illustration of the way in which non-formal activities are conducted in a remote rural area". The nucleo had 31 educational centres, and a very active team of promotores.

One of the nucleo's first activities reflected its concern with education in the broadest sense: a food and nutrition programme. The task commenced with a survey to identify needs which, although obvious to any observer in a general way, still required specific identification. In cooperation with other local agencies, a programme for improved agriculture and food preparation was initiated.

The promotores were key individuals in this process. In an average week, each one visited upwards of 125 individuals, meeting them in the fields, in the workshops or in their huts. The job required infinite patience, genuine dedication, and considerable physical stamina.

Each promotor began by assessing his area's geographic, cultural and political features. He paid special attention to ways to coordinate activities in all sectors. Simultaneously, he prepared a file for each individual, indicating age, sex, occupation, languages spoken, interests, motivation, educational level, etc..

With this information, and sometimes with the help of individuals who had received some education, the promotores began to initiate dialogues on such topics as nutritional and medical problems, cooperatives and agriculture. Later, after gaining confidence, the they embarked on more 'personal' issues: the long and exhausting hours of labour, relationships in the family, the impact of alcohol, etc..

At the beginning, some promotores had inappropriate attitudes. One, from outside the region, enthusiastically recommended a vast propaganda campaign to 'sell' the value of literacy, thereby betraying his ignorance both of the local mentality and the requirements for lasting achievement. As one worker replied, "the locals cannot be forced or brainwashed into wanting literacy; it is a false theory; literacy can only be of use if it is one aspect of a total development process".

The process was indeed slow. But the team was committed and made gradual progress. Bizot (p.51) pointed out that it led the people to see that "discussion of their individual and communal problems and the possession of a certain level of literacy are just the steps towards escaping from a destiny which they are no longer ready to accept".

c) *Rationalisation of Resources.* Particularly after an economic recession that commenced in 1977, nucleos proposed and implemented such rationalisation measures as:
   - assignment of teachers from special vocational training centres (in which the enrolments had declined) to regular basic education centres;
   - increases in the number of pupils per section;
   - amalgamation of centres and/or sections with small numbers, and
   - utilisation of community facilities.

In the late 1970s, four nucleos became the focus of a project to explore the ways that educational centres could share both fixed and mobile resources. Ruiz-Duran (1983, p.98) states that "feasibility studies have shown conclusively that the adoption of the service centre cuts down spending two or threefold in comparison with permanently equipping all nucleo education centres".

4. Problems

However, the programme encountered some serious difficulties. They became particularly pronounced during the mid and late 1970s.

(a) *Boundaries.* In order to maximise the rational use of educational resources at the local level, education officers had to choose well-equipped schools to serve as the central ones. But this meant that nucleo boundaries were drawn on the basis of the schools that could serve the central one. The boundaries did not always coincide with existing local government ones. In these cases it was hard to coordinate the operation of nucleos with the work of other government agencies.

(b) *Staffing.* Few nucleos were ever fully staffed. The original plan was perhaps unrealistic, but it stipu-

lated that each nucleo should have at least four professional staff. The positions were hard to fill; and when staff *were* recruited, their salaries became a serious financial burden.

(c) *Ministry Procedures.* Although the new structure anticipated a shift in decision-making authority, officers in the Ministry of Education sometimes failed to recognise this. Some officers continued to issue instructions to lower levels even for such trivial tasks as organising school ceremonies to commemorate minor national heroes. Curriculum remained centrally controlled, and nucleo personnel spent considerable time on statistical and other administrative demands passed down the hierarchy.

(d) *Planning.* Much of the planning was ineffective because of skill constraints. Although the ministry had provided guidance with the types of statistics to be collected, it gave little help in analysis of data or in priority-setting. Moreover, the plans had to be produced rapidly, and little scope was allowed for revision.

(e) *Finance.* Implementation of many plans was also obstructed by resource constraints. The nucleos created in 1972 were each given the equivalent of US$2,000 to buy office equipment, but the others were less fortunate. Transport allowances for the curriculum specialists were only equivalent to US$5 per year.

(f) *Participation.* Despite some successes, noted above, overall achievements fell short of hopes. One study published in 1980 estimated that only 40% of nucleos had proper community councils. And even when proper councils did exist, it suggested, they suffered from poor attendance and higher level support. In a few cases parents did question educational programmes and policies; but then nucleo directors tended to respond by cancelling council meetings. Thus the role of communities was restricted to fund-raising and other

supportive tasks. Only in rare cases were community members able to take broader policy decisions.

5. Modifications to the Original Concept

In 1975, one aspect of the original plan was radically changes. A new decree announced that future nucleo directors would be appointed by the Ministry rather than community councils. This was justified on the basis of the 'excessive acquiescence' that the nucleo directors had shown to the councils. Two years later, the ministry decided that nucleo directorships would be filled through national contest, thus further reducing the directors' responsiveness to the communities they were supposed to serve.

Further modifications were made in 1977 because of an economic crisis. As Peru's external debt had reached its critical repayment period, the International Monetary Fund pressed the government to reduce state expenditure. In order to cut costs and at the same time maintain educational supply, the ministry decided to reduce the number of nucleos and thus release administrative officers for teaching positions.

Accordingly, the number of nucleos was cut from 819 in 1975 to 642 in 1977. This further disrupted the scheme, for even the remaining nucleos had to adjust themselves to enlarged scope without extra funds. Ironically, although the nucleos were originally expected to maximise the use of local resources and thus to produce savings, the reason for their subsequent reduction was that they represented an additional cost to the system.

The civilian government overthrown by the armed forces in 1968 was elected back to power in 1980. One of its first actions was to commission an evaluation of the nucleo system. The survey, conducted mostly by officials of the Ministry of Education, was fairly favourable. It concluded that although participation had been poor, the community councils had helped provide resources for the schools.

However, mere maintenance of a system shaped and directed by officers from above was very different from the

radical reform originally envisaged. And despite the commission's report, the new government failed to support the nucleos. A 1982 education law signalled their demise by failing even to mention them.

6. Conclusions

One major problem for the nucleo system was that it relied on wider revolutionary change and the existence of the 'new Peruvian man'. As many movements discover, it is easier to embark on far-reaching changes during a period of revolutionary fervour than it is to sustain them. The educational reforms of which nuclearisation was a part aimed to help redistribute power and transform the whole society; and in this they were too ambitious.

The main factors that obstructed success may be summarised as follows:

(a) *Political Factors*

* The reform lacked a broad political base. It was too much a 'top-down' reform, officially in the name of the people but not actually demanded by them. Previous government had been highly authoritarian, and people's habits could not be changed overnight. Moreover, before society could get used to the new system, the reform had been overtaken by further political and economic changes.
* Even within the military regime that enacted the reform there were opposing factions. Some people feared that the reform would give power to destructive radical groups.
* The reform was distrusted by the teachers, particularly because their unions were in conflict with the government over separate issues. Some teachers in the community councils deliberately obstructed the work of the nucleo directors, whom they saw as agents of the central government.

(b) *Conceptual Factors*

* Much of the rationale, e.g. that the nucleos would lead to sharing and thus more efficient use of resources, had been inadequately thought through. The architects of the reform had failed precisely to identify the types of facilities that could be shared and the mechanisms for sharing them.
* Although the community council was supposed to have community representatives, the guiding law did not indicate who these people should be. The original intention was to include representatives of peasant associations and labour unions, but more often they were such traditional authorities as the mayor, the local priest, the chief of police and officials of the national or provincial government. Thus, almost 80% of community representatives were local officials of the central government. For many of them participation was an unsolicited burden, and they chose not to attend meetings.

(c) *Technical Factors*

* Ministry officials were often reluctant to hand over power to the nucleos - partly for selfish reasons and partly because they feared chaos in the system.
* Although training sessions were provided for nucleo directors, the training got stuck at the political and conceptual level. The directors lacked understanding ways to achieve the political goals - *how* to encourage participation, organise budgets, set up new programmes, etc..

Yet although this seems a formidable catalogue of problems, it should also be noted that faith in the potential of nuclearisation is not completely dead. In 1985 Peru's new ruling political party, APRA, proposed a revival of the nuclear concept: a proposal that was strongly welcomed by at least some church bodies. The party recommended that the new

start should be accompanied by a new name: that the nucleos should be called 'Unidades de Servicios Educativos'. How far the proposal will be taken remains to be seen. However it is an indication that despite the disappointments of history, the basic model still has considerable appeal if administrators take care to learn from the past.

7. Costa Rica

Although the Costa Rican nuclearisation scheme developed at about the same time as the Peruvian one, it was quite different. Indeed the Peruvian model was examined and some aspects were explicitly discarded as inappropriate to Costa Rica's situation and goals.

This account is chiefly based on the work of Olivera (1983). Its three main sections discuss (1) the history and structure of the system, (2) the operation of the system in practice, and (3) prospects for the future.

1. The System

(a) Origins

Costa Rica's scheme originated in an official survey of the education system in 1971. The survey highlighted the problems of rural schools, and proposed a system of 'networks' to link primary and secondary schools. Several field supervisors immediately responded by dividing up their school districts. However at that stage the idea had not been properly formulated, and in most cases the proposal was merely used by supervisors to simplify their own administrative chores.

The idea received a further thrust in 1972, when education officers embarked on an exercise in school mapping. The work was carried out in conjunction with staff of the International Institute for Educational Planning (IIEP), and stressed the potential benefits of clusters. The work contributed to more deliberate formulation of ideas, which was published in 1975.

The scheme was finally launched in 1976. It began in two regions, and was expected to expand to the rest over the next five years. When fully operational, the scheme was expected to have about 400 nucleos.

(b) Structure and Functions

The Costa Rican scheme differed from the Peruvian one in three main ways:

* Each nucleo had only about five or six schools. The Peruvian ones had an average of 25 schools each, i.e. the size of a whole Costa Rican school district.
* Whereas the Peruvian scheme covered the whole country, the Costa Rican one only covered rural schools.
* Whereas the Peruvian scheme had a strong ideological objective, the Costa Rican one was mainly an administrative arrangement.

Enlarging on the ideological differences, Olivera (1983, p.103) points out that most peasants in Costa Rica, though knowing themselves very poor, did not feel oppressed. Social inequalities were less marked than in Peru, and individuals could express themselves freely without fearing the police. In addition, Costa Ricans were noted for "undisciplined individualism", which made it hard to form community bodies. Teachers usually had more sophisticated views of society and could sometimes work together to encourage a sense of community, but it was unusual for communities to operate cohesively by themselves.

Reflecting this situation, Costa Rica's nucleos were mainly concerned with administrative and budgetary rationalisation. The main idea was:

> to go beyond the traditional model of school organization to new and more effective model where administrative and pedagogical decisions are located mid-way between the ineffective single school and the invisible - and unseeing - higher authorities.

As in other countries, nucleos gave individual schools access to shared resources and specialist teachers.

In addition, the authorities decided that:

* No satellite school could be more than one hour's journey from its central school.
* No nucleo could be entirely composed of one-teacher schools.
* Each nucleo should be able to offer the whole range of educational services, i.e. pre-school, basic nine-year education, complementary or remedial education for adults, and even special education for the handicapped. If nucleos could not offer these services by themselves, they should at least be linked to relevant institutions in adjoining areas.
* Each nucleo would be given extra staff for guidance work, libraries, sports, and art & craft. Each nucleo

would also receive extra teaching aids, library books, and typewriters.

At the same time, administrators were encouraged to adapt the basic model to their own circumstances.

2. Operation of Nucleos in Practice

(a) Coverage

Following a few modest training sessions, the scheme was officially launched in two regions in 1976. The staff concerned were enthusiastic, and developments proceeded fairly briskly. Each nucleo organised meetings of headteachers of constituent schools, of school staffs and, in some cases, of communities.

In October 1976 the scheme was the focus of a somewhat rapid evaluation, and in 1977-78 another two regions were added. In 1978, however, a new government came to power, and further expansion was halted. At that stage, the 'nuclearised' regions had:

12% of the pre-school enrolment,
17% of the primary school enrolment,
26% of the schools, and
25% of the supervisors.

Schools in the nuclearised regions tended to be small, with an average of 79 pupils each as opposed to the national average of 121.

(b) Achievements

Four main achievements may be noted:

i) *Decision-Making.* As teachers became used to exchanging experiences and to suggesting or taking decisions, they became more mature - less dependent on Ministry decisions, and better able to respond to local needs.

The agendas for fortnightly discussions between regional authorities, supervisors and nuclei co-ordinators ceased to be determined by the Regional Directors, and instead were set by the nucleo staffs. Overall, the nuclearisation scheme was greatly welcomed by the teachers.

ii) *Nucleo Projects.* Many nucleos embarked on their own projects, e.g. creation of community library services, organisation of workshops to make teaching materials, acquisition of electrical generators, etc.. Most of these projects operated without inputs from higher levels in the system.

iii) *Curriculum Adaptation.* The detailed, uniform curricula issued by the Ministry were often modified to suit local conditions. In one area, completely new materials were produced in local languages.

iv) *Administrative Changes.* The newly-felt need for better communication and effective team work led in some cases to changes in school district boundaries.

(c) Shortcomings and Failures

At the same time, the project suffered from major problems:

i) *Lack of Political Support.* The strong drive for administrative reform, which had started in 1972-73 with real participation at the lower levels, was frustrated in 1974 by the sudden decision of a new minister to change the whole administrative structure at the top. The nuclear concept was not directly affected, but it survived only as an isolated element of the previous situation, disconnected from the main current of the Ministry's actions.

ii) *Lack of Resources.* The extra teachers, librarians, books and other resources promised in the original guidelines were never provided. Some central schools already had secretaries, but they were usually too busy to take on the extra work of satellite schools.

A separate scheme was launched to develop school libraries and to provide science kits, but these were for all schools and thus were independent of the nuclearisation project.

iii) *Separation of Levels.* Despite the intentions of the scheme, most nucleos operated only at the primary level. The traditional separation between primary and secondary schools remained as strong as before.

iv) *Poor Information Flows.* The flow of information from the central authorities was deficient both in amount and quality. It was hard for nucleo personnel to gain clear information either on new administrative structures or on training schemes. And because information was not generally circulated throughout the system, few of those who were not directly involved understood either the project's aims or its scope.

v) *Inadequate Training.* Preparatory training schemes were inadequate. Although many nucleo personnel were enthusiastic, few had the technical competence to implement the proposals. They lacked clear understanding of the administrative implications of the reform, ways to change curricula, ways to organise group work, or techniques for project preparation. And the few topics that were covered in the initial training sessions were not properly developed through sustained follow-up.

vi) *Choice of Coordinators.* Nucleo coordinators were chosen not for their personal and professional abilities but because they happened to be headteachers in the schools which for geographic reasons had been made central ones. Other staff sometimes had stronger leadership qualities, and nucleos suffered from personality clashes.

vii) *Lack of Community Control.* Although contacts between teachers and their communities were generally good, in few cases were communities enthusiastic to exert real guidance or control. Most preferred to leave major decision-making to the teachers and other authorities.

The lack of political support from the centre was probably the most serious problem. The scheme was finally launched in 1976 thanks to the stubbornness of certain national and regional officers, who succeeded in demonstrating that there was no other practical way to help rural schools. But reluctant assent on the part of political authorities who had not participated in the preparation of the programme was not enough to ensure a strong financial base. Sensing this, many Ministry officers were reluctant to give the programme strong support; and others barely knew that it even existed.

3. Prospects for the Future

Because of all these difficulties, the Costa Rican experiment was shortlived. Writing in a 1987 personal communication, Olivera stated:

> At present practically nothing remains of the nuclearisation program: as usual in such cases, no official provision has ever put an end to it, but it was simply left to die.

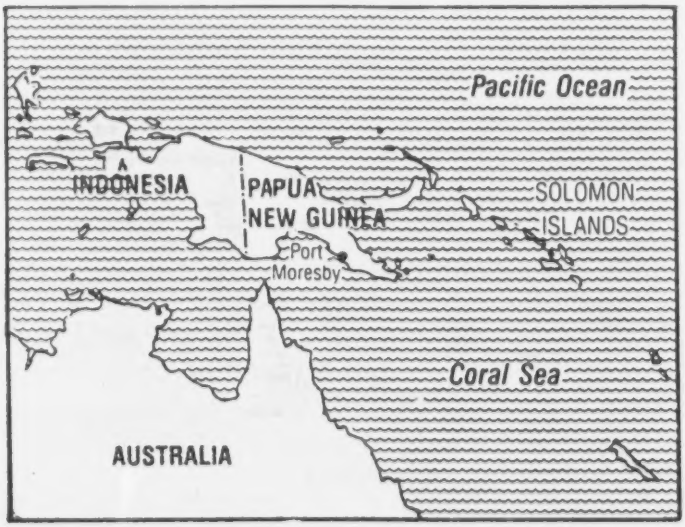
The chief obstacle was a political dispute within the government, which stifled the leadership of the project.

Yet Olivera also felt that the basic concept remained sound. It was strongly welcomed by the teachers themselves, and "in the eyes of all those who have actually worked on it, the scheme still looks attractive and deserving of every effort". Moreover, in 1987, the Ministry of Education, "after four years of doing nothing", gained a new Minister who was more prepared to tackle difficult problems. Whilst the history of nucleos in Costa Rica has so far been rather negative, therefore, there remains hope that the basic concept will not be abandoned altogether.

8. Papua New Guinea

The Papua New Guinean models are rather different from those highlighted in the other country studies. The purpose of clustering is narrower, and structures are less formal.

This chapter focuses on two types of clustering, both chiefly concerned with in-service teacher training. The first is the annual National In-Service Training (NIST) Week, and the second is the Education Resource Centre.



1. The National In-Service Training Week

(a) Origins and Structure

NIST Week has been an annual event since 1966. During each March-April vacation, teachers gather in local zones to share ideas and examine common problems. Separate groups are organised for primary, secondary and vocational teachers.

When NIST Week was first formed, it was a national government responsibility. In the late 1970s, 19 provincial governments were created as part of a drive for decentralisation. NIST Week is now mainly a provincial government responsibility, though the national government assists with finance and professional guidance.

The number of participants in each NIST Week group depends on local circumstances:

* *Primary schools* are divided into 'zones', e.g. with 10-15 schools each.
* *Secondary schools* are less numerous. No province has more than nine schools, and some have only two. Provinces with few secondary schools usually require all staff to meet in one centre. Provinces with many secondary schools divide the staff up, either by region or by subject. In the latter case, for example, all maths and science teachers might go to one centre, and all language and arts teachers to another.
* *Vocational centres* are treated in the same way as secondary schools. If the province has few centres, all staff meet together. If the province has many centres, staff are divided up.

When NIST Week was first started, the topics for discussion were set by the national government. Now they are set by the provincial governments in conjunction with the inspectors and the teachers themselves.

(b) An Evaluation

In 1983, the national government's Department of Education

conducted a survey to assess the value of NIST Week. Views were collected from teachers, inspectors and provincial administrators. The overall feedback was very positive.

Table 7 summarises the views of 300 primary, 120 secondary and 103 vocational teachers. Among the primary teachers, 55.5% considered the programme 'very helpful', and 36.8% considered it 'helpful'. The secondary and vocational teachers were not quite so enthusiastic, but were still strongly positive. Only 3.1% of the primary teachers, and 1.0% of the secondary teachers considered it 'very unhelpful', and no vocational teachers at all were in this category. Similar positive feedback was received on the extent to which NIST Week ideas were used in teaching (Table 6).

Table 7: Teachers' views on the value of NIST Week (%)

		Primary	Secondary	Vocational
General opinion of NIST Week:	very helpful	55.5	28.1	37.5
	helpful	36.8	66.1	60.4
	unhelpful	4.6	5.0	2.1
	very unhelpful	3.1	1.0	0.0
How often NIST Week ideas are used in teaching:	very often	13.6	8.7	10.0
	often	30.5	33.0	21.0
	sometimes	49.2	43.5	52.2
	not often	5.7	10.4	11.1
	never	1.0	4.3	5.5

The views of the inspectors were also very positive. Among the primary school inspectors, 31.6% considered NIST week very useful, and 61.4% considered it of some use. Only 7.1% considered it to have little or no use.

(c) Modifications to Improve Effectiveness

Despite the overall positive feedback from this evaluation, it was clear that improvements could be made. The main ones were in (i) content, (ii) financing, (iii) training for co-ordinators, and (iv) linkage with other in-service work.

(i) Content

Table 8 summarises the views of the primary school teachers on the content of NIST Week. They particularly wanted more attention to:

* administration,
* making teaching aids, and
* explanation of syllabus changes.

Few complaints were made about topics having too much time allocated to them. The organisers did not wish to extend the length of NIST Week, so were presented with a difficult problem in priority-setting. However, the evaluation gave them guidance on topics needing more attention.

Table 8: Primary school teachers' views on the content of NIST Week

	Too Little	Enough	Too Much
Administration	60.9	35.4	3.6
Making teaching aids	57.4	33.7	8.8
Explanation of syllabus changes	55.2	36.7	8.0
Study of teachers' guides	51.1	43.0	5.8
Student testing	49.4	46.2	4.5
Study of existing syllabuses	48.2	43.9	7.8
Programming	33.7	57.6	8.7
Teaching methods	28.5	59.9	11.5
Subject knowledge	20.5	70.5	8.9

Similar comments were made by the secondary and the vocational teachers. Like the primary teachers, secondary staff most urgently requested more attention for administration (71.4%) and syllabus changes (63.2%). The vocational teachers chiefly asked for more time on making teaching aids (60.7%) and sources of funds (58.4%).

(ii) Finance

The 1983 evaluation showed that almost everybody felt that too little money was allocated to the NIST Week. In that year, K30,000 (approx. US$39,000) was provided. Of this,

- K5,000 was set aside for materials and the pre-NIST Week planning workshop, and
- K25,000 was left for the sessions themselves.

Since in that year the three types of institution had 11,800 teachers, allocations for the main sessions amounted to only K2.12 (US$2.80) per teacher. Materials and transport are costly in Papua New Guinea, and teachers had to supplement this allocation by paying for their own transport, accommodation and extra materials. Overall unit costs to the government were estimated at K115 per primary school pupil, and K360 per secondary school pupil.

Following this evaluation, the budget was increased. In 1984 it was K35,000, and in 1985 it reached K65,000. In addition, in 1985 K10,000 was allocated to a series of special workshops in financial management for secondary school teachers.

(iii) Training for Coordinators

The 1983 evaluation also stressed the need for training of coordinators. It pointed out that although the teachers were very positive about the scheme, delivery skills were often very weak. It felt that the professional benefit from in-service work was directly proportional to the quality of planning and presentation.

Accordingly, in 1984 and 1985 special workshops for coordinators were organised. The national government played the main role in this. The national authorities decided also to expand its 'bank' of curriculum and teaching materials that could be used throughout the country during NIST Week sessions.

(iv) Linkage with other In-Service Work

Finally, the 1983 evaluation stressed the need to strengthen the linkage between NIST Week work and other school-based in-service work. Schools are required to set aside at least one hour a week for in-service work, usually under the direction of individual headteachers. Inspectors and workshop leaders in 1984 and 1985 paid particular attention to linkage with these sessions.

Introducing New Materials: Points to Bear in Mind

NIST Week sessions often focus on new books and other masterials produced by the national government. To help workshop planners, the Inspectorate recommends them to bear the following points in mind:

- *Workshops should include practical activities directly related to the classroom use of the new materials. Sessions should not just cover textbooks page-by-page.*
- *Workshops should stress the common elements of new materials in different subject areas. This helps teachers to cope with a range of new items, and promotes subject integration.*
- *Workshops should contain enough sessions to cover the topic thoroughly.*
- *Each session should be long enough for teachers to acquire the necessary skills and prepare the desirable aids.*
- *Workshops should also guide teachers in ways to assess their own and their pupils' progress.*

2. Education Resource Centres

The Education Resource Centres (ERCs) are also mainly concerned with in-service teacher training. They resemble cluster schemes elsewhere in so far as they are central institutions into which resources are poured for the benefit of surrounding schools. However, the authorities chose to make them institutions in themselves rather than attaching them to central schools, and they operate on a much wider scale.

(a) The Southern Highlands Centre

The first Education Resource Centre was established in Southern Highlands Province in 1980. It was mainly funded by a national government grant, but was supplemented by provincial resources. At that time, the province had 123 primary schools, six secondary schools, and four vocational centres.

The official functions of the ERC were to:

* conduct in-service training courses,
* provide facilities and resources for teachers to develop their teaching aids,
* provide an education library,
* construct teaching aids,
* provide a forum for discussion of educational problems,
* participate in aspects of curriculum development and implementation,
* publish materials and an education newsletter,
* offer loans to schools for specific educational equipment, and
* conduct research and evaluation.

The provision of loans was particularly unusual. Schools were expected to repay the loans (without interest) either from fees or from government grants allocated directly to the school level.

Use of the Southern Highlands Centre

During the first year of its operation, the Centre hosted 26 workshops and 29 meetings. They lasted from one to five days, and included:

- a meeting for review of the education law,
- two provincial secondary school headteachers' meetings,
- a NIST Week workshop for secondary school teachers,
- a zonal mathematics workshop,
- a workshop in multigrade teaching methods,
- a workshop for materials supervisors,
- a community involvement workshop,
- a provincial cultural workshop,
- three literacy workshops,
- a district nonformal education officers' workshop,
- two primary school inspectors' meetings,
- a youth workshop,
- a commerce workshop,
- an integrated/extension workshop,
- an on-the-job training methods workshop,
- a workshop on ways to use spirit duplicating machines,
- an education planning and development committee meeting,
- a Provincial Education Board meeting,
- a Provincial Cultural Council meeting,
- a Highlands Region nonformal education meeting,
- a Health Agencies Board meeting,
- a provincial government celebration committee meeting, and
- several meetings of the Teachers' Association.

In addition, many teachers used the centre for individual work, e.g. using the library and preparing visual aids. The transit house was used by 473 people for 1,630 nights.

During this year, operation of the Centre (including salaries) cost K25,000. The provincial government considered this a very effective use of resources.

The centre had two staff, responsible for identification of needs and for general administration. A 'transit house' providing accommodation for up to 30 people was attached to the centre for the benefit of individuals coming from distant places.

(b) Education Resource Centres in Other Provinces

Following the Southern Highlands lead, during the early 1980s resource centres were set up in seven other provinces. Funds, training and technical assistance for most of them were provided through a World Bank project. Between 1982 and 1985 this project spent K138,000.

The models for the other centres differ in some respects from the Southern Highlands one. For example:

* only one has a transit house attached to it,
* one is 'teacher owned', and is run by provincial in-service training officers rather than a full-time manager, and
* several aim only to serve their localities rather than the whole of the provinces in which they are located.

A 1985 national government evaluation study of Education Resource Centres highlighted wide variations in the conditions they faced. For example, while one was sited on a main road and thus was fairly accessible to schools near the road, another was on an island accessible only by air or boat. The study pointed out the difficulties of attracting teachers to use the centres in their own time and on their own initiative. It also noted budgeting and other management problems. However, on balance the evaluation was very positive: it considered the centres a very worthwhile innovation.

Materials for Teachers' Use

The Western Highlands Education Resource Centre has, among others, the following items for teachers' use:

astronomy fact book	*paint*
cardboard	*paper*
cassette players	*radios*
clock face	*saws*
coloured pens	*scissors*
earth history model	*simple balance*
eye model	*spirit duplicator*
geology models	*slide projector*
geology fact books	*stencils*
glue	*string*
guillotine	*tools*
lettering kit	*teeth*
maps	*weather charts*
metre sticks	*wheels*
movie projector	*wire*
nutrition posters	*wood*

Apart from the expendable materials, most items are only available for use within the Centre. However, some can be borrowed under certain circumstances.

III. IMPLICATIONS FOR POLICIES & PROGRAMMES

9. Cluster Design

The country studies show a wide range of cluster models, each of which has been shaped by its context and by the dominant purposes of its designers. Comparison of models helps draw attention to particular features and to their strengths and weaknesses. This chapter turns back to the main functions of cluster schemes outlined in Chapter 1, and comments on the relationships between those functions and cluster design.

1. Improved Cost-Effectiveness

Clusters can improve cost-effectiveness by encouraging schools to share equipment, staff and buildings. The way resources are shared partly depends on whether they are movable. Books and teachers, for example, may circulate among schools; but because delicate science equipment and buildings cannot be moved, satellite school children must use them in the central schools.

(a) Movable Assets

Circulation of movable items and staff is relatively straightforward. As Chapter 1 pointed out, patterns of sharing chiefly depend on the number of items and staff. A cluster of secondary schools with only one accountant, for example, can send the officer round every school in turn; but if the cluster has two accountants, the officers can each deal with half of the schools. The same would apply to specialist teachers.

(i) Requirements
For books and equipment, organisational requirements may be illustrated by the tin-box library project in Thailand. The project required:

- strong boxes, able to protect the books,
- a timetable to guide schools on circulation,
- a flexible exchange system which would not get upset if one school worked too slowly,
- a system for periodically checking and repairing the books.

For sharing of staff, organisational requirements may be illustrated by a the work of a music teacher. The person would need:

- a timetable for each school which did not get changed at short notice, and which fitted well with the timetables of all the other schools,
- either a personal car or a good knowledge of public transport (in order to arrive in time for lessons), and
- either instruments and music books that can easily be carried by the teacher or a permanent set in each school.

If the schools are very scattered and the teacher has sometimes to stay overnight, the system also requires accommodation arrangements.

(ii) Difficulties
One can envisage some difficulties with a rotating system of circulation. For example:

* The library box might be ready to go (and transportation might have been arranged) but one person was known still to have a book. In this case,

the school would have to decide whether to delay despatch of the box or whether to wait for the single book. Immediate despatch would encourage more rapid circulation and thus more effective use of the books; but there would be a danger of the single book never catching up with the box again.

* With science equipment, nutrition charts, maps etc., schools would have to plan their curriculum well in advance and let the other schools know, so that the items would not be in use or stuck elsewhere. If the system broke down, schools might have all their lessons ready, but would then have to postpone them and change their teaching schedules.
* Teachers might be delayed by transportation difficulties and might be unable to send messages in time for the schools to make alternative arrangements.

Problems such as these should not be underestimated, particularly where schools are scattered and have poor communications. However, they are certainly not insuperable. A well organised committee can set guidelines for use and circulation of equipment and books, perhaps backed up by fines or other sanctions; and schools can often improvise if a specialist teacher arrives late. Also, the fact that use of shared equipment and staff requires schools to plan in advance has a positive side to it.

(b) Fixed Assets

Fixed (i.e. immovable) assets include buildings, heavy equipment, and large libraries. They may be used by staff for in-service work or by students for normal lessons. Because they are immovable, they can only be shared by the satellite schools if the staff and/or students come to the core school. Figure 6 in Chapter 1 showed the way that the system works.

The nature of required organisational arrangements may be illustrated by a science laboratory sited in the core

school but used by all schools in the cluster:

(i) *Staffing.* The cluster committee has first to decide whether all science teachers will be based in the core school and will thus teach children from every school, or whether each satellite school will have its own science teacher who will travel with the pupils and will teach them in the core school.

The advantages of science teachers being based in the core school are that:

- Staff can be used more efficiently. If every satellite school has its own science teacher, there is a danger of those teachers being under-utilised.
- Teacher-time is not wasted in travel from the satellite schools to the core school.
- The core school science teacher can more easily ensure that the laboratory is respected and kept clean, that chemicals are kept in adequate supply, etc..

On the other hand, the advantages of every school having a science teacher are that:

- Theory work, which does not need a laboratory, can be done in the satellite schools. This avoids unnecessary travel.
- Teachers who are based in the satellite schools usually know their pupils better. This may help them both to teach and to enforce discipline.
- Teachers who travel to the core school with their pupils can supervise them during the travelling period.

Because arguments exist on both sides, the final decision is likely to depend on availability. If no science teachers are available for the satellite

schools, then there is no choice; but if teachers are available, it is probably best to spread them throughout the system.

(ii) *Timetabling.* Because of the costs of money and time, satellite schools usually prefer their pupils to travel as little as possible. Instead of having a particular class's laboratory lessons scattered throughout the week, therefore, they usually prefer lessons to be taught in a block during a single morning or afternoon.

(iii) *Ordering of Supplies.* Particularly for usable materials (chemicals, etc.), the host school must find out several months in advance what each satellite school will need. This requires good planning and coordination.

2. Improved Educational Quality

Two ways that clusters can improve quality emerges from the above discussion: when clusters share staff and materials, the disadvantaged schools gain access to new resources; and when schools group together to make bulk purchases, savings can be used for extra qualitative inputs. In addition, clusters can organise curriculum workshops, in-service training, sports competitions, excursions, and so on. These are relatively straightforward, and do not require further discussion in connection with design.

However, several points should be made about clusters that require heads to inspect teachers and to make recommendations for promotion. This is a feature of the Sri Lankan and Thai models, for example, and was also a feature of a small Burmese cluster scheme launched in 1978. For this type of arrangement to work well, four aspects require particular attention:

Improving Cost-Effectiveness through Bulk Orders

Another way to improve cost-effectiveness is through bulk purchase. Instead of making individual orders of books, chalk, science equipment, etc., schools can make joint orders.

Bulk purchase has the following advantages and disadvantages:

Advantages: - *it allows schools to secure discounts and to reduce transportation costs, thereby saving money,*
- *it encourages schools to use the same equipment and textbooks, and*
- *it requires administrators to think ahead.*

Disadvantages: - *it cannot be implemented in an emergency*
- *it is sometimes associated with delivery delays, especially for overseas orders,*
- *forecasted needs may be inaccurate, and*
- *it often requires good storage facilities.*

(a) *Responsibilities.* These must be clearly defined. In Thailand, problems have arisen from overlap of the duties of inspectors and cluster heads. Teachers have sometimes refused to accept the advice and authority of cluster heads, instead paying more attention to the inspectors. Overlap of responsibility has undermined the role of the cluster heads and has led to conflict within the system.

(b) *Workloads.* These must be realistic. With reference to the Burmese scheme, Sail (1979, p.4) observed:

> Each cluster leader is a full-time headteacher, often with two standards to attend to or inexperienced volunteer teachers to guide, and he cannot possibly have sufficient time to follow up 18+ teachers in 9 separate schools.

Similar problems of workload have arisen in other cluster systems.

(c) *Finance.* The head requires sufficient finance to be able to travel between schools. Lack of financial resources has been a critical problem Costa Rica and some of the Indian schemes.

(d) *Skills.* In all systems, cluster heads are likely to need guidance in techniques for inspection and supervision. Particular difficulties are likely to occur in systems (e.g. as in India's Haryana State) in which the cluster head is always a secondary school principal, for such people may not be well equipped to deal with primary teachers.

3. Improved Administration

Major discussion on the implications of clusters for decentralisation is postponed to Chapter 11. Meanwhile, however, some comments may be made on (a) cluster size and (b) cluster coverage.

(a) Cluster Size

The schemes outlined in Part II show considerable range in size. At one extreme, Peru's nucleos commonly had over 25 schools each, and many had twice that number. As such, the

nucleos represented what in other countries might be called school districts. They were in sharp contrast to Costa Rica's nucleos, most of which had only five or six schools each.

This contrast highlights the dangers of assuming that because two systems use the same word, one is analysing the same type of organisation. In effect, the Peruvian nuclearisation project was a formation of school districts where none existed before. The authorities in Costa Rica had no need to create nucleos of this size because districts already existed.

This fact also explains the variations in staffing. The original plans in Peru anticipated that every nucleo would have at least four professional staff plus at least three support staff. This level of staffing could be justified in nucleos of the Peruvian size. In smaller schemes, such staffing could not be justified; but in most smaller schemes such personnel are already employed at the district level.

The question then arises whether the Peruvian scheme needed nucleos within nucleos - smaller sub-units with greater autonomy. During the design of the nuclearisation scheme some officers recommended this, but were overruled because of the government's desire to more rapidly. The experience of other countries indicates that such smaller nucleos could have been valuable. It also highlights the problems of coordination when nucleos are too large. In Thailand, for example, Kunarak & Saranyajaya felt that the optimum size was about seven schools. Likewise, a report on the Burmese scheme highlighted coordination problems when clusters had more than nine schools; and a third study in Papua New Guinea reached similar conclusions about the rather more narrowly focused NIST Week.

However it is impossible to formulate universal rules, and designers of cluster schemes should always take local circumstances into account. Parts of India, for example, are very densely populated but also have many small schools. Whereas governments in other countries have pursued strong consolidation policies for small schools, consolidation has

been less actively pushed in India. Thus while a district in another country might have all its pupils in seven schools, in India the equivalent number of children in a district the same size might be spread over 14 schools. In the latter case, it is easier to justify a cluster with a larger number of institutions.

By contrast, two factors behind the Costa Rican decision to keep clusters small were (i) the lack of a strong tradition of community interaction, which made the authorities feel that it would be easiest to gain support for projects that were restricted in size and scope, and (ii) the difficulty of physical communications, especially during the eight-month rainy season (which coincided with most of the school year).

In summary, therefore, authorities have to assess their own objectives and situations. Large clusters may be justifiable in some circumstances, though most studies emphasise the problems of coordination when clusters have more than nine or ten schools.

(b) Cluster Coverage

Analysis of cluster schemes shows several different models:

(i) *Universal Coverage.* When clusters are formal units in the administrative hierarchy, it makes sense for every school to be part of a cluster. It is administratively untidy for regional authorities to have to deal with some schools via clusters and to deal with others directly. This rationale explains the patterns of national coverage in Peru and Thailand, for example.

(ii) *Almost Universal Coverage.* Despite the merit of universal coverage noted above, the policy risks creation of some units with little geographical or political justification. In contrast to the Peruvian and Thai models, therefore, the designers of the Sri Lankan scheme only aimed at 90% coverage. They envisaged that some very large schools and some very remote schools would be excluded. The large schools

would be excluded (i) because they would excessively dominate the clusters if they were members, and (ii) because they could be assumed to be more self-sufficient, perhaps having something to offer other schools but less themselves in need of sharing. The remote schools were excluded on practical grounds, on the assumption that no meaningful and regular communication with other cluster schools could in their case be arranged.

(iii) *Regional Coverage.* A further alternative is illustrated by the first project in Peru and by comparable projects in Colombia and Guatemala. In this model, nuclearisation is only introduced in disadvantaged districts requiring special help. It is a mechanism for injecting resources into those regions.

(iv) *Rural Coverage.* The Costa Rican scheme is an example. The nucleos were only designed to cover rural schools.

(v) *Voluntary (and perhaps Scattered) Coverage.* The schemes in Rajasthan and Maharashtra (India), and the pilot project in Sri Lanka, were operated only on a voluntary basis. The cooperation that arises from such a basis is obviously desirable.

However, voluntary associations can have problems:

- Effective geographical coverage may be incomplete. Because of friendship ties, the heads of two distant schools may linked in a cluster even though nearer schools may not.
- The clusters may be fragile: (i) if people can volunteer to join a cluster, they can also volunteer to leave it; (ii) if a school becomes part of a cluster when it has an enthusiastic headteacher, it may be withdrawn when that headteacher is replaced by another; and (iii) it is hard for heads of voluntary cluster schemes to exercise authority. Cluster activities can exist only by voluntary cooperation, without sanctions.

Integrating Levels: Benefits and Problems

A different aspect of coverage concerns the level of educational institutions embraced in clusters. Should clusters (i) be restricted to the primary level (as in Thailand), (ii) be organised separately for primary and secondary schools (as in Papua New Guinea), or (iii) embrace both primary and secondary schools (as in Sri Lanka, India and Peru)?

The main benefits of the third option are that:

- primary schools gain access to secondary school resources, which are usually more plentiful,
- secondary school staff gain more understanding of the background of primary school pupils, and can adjust their teaching accordingly, and
- primary school staff gain more understanding of the demands of secondary schools, and can also adjust their teaching accordingly.

However, the third option also encounters problems:

- the outlook and needs of secondary teachers are rather different from those of primary teachers, which makes it hard e.g. to organise in-service sessions,
- equipment needs are also rather different at the two levels, which makes it hard to share common resources, and
- linkage of primary and secondary schools strengthens a widespread assumption that secondary education is a logical and legitimate goal for a primary school pupil.

Because there are arguments on both sides, it is obviously impossible to devise a strategy which is universally appropriate. Among the factors, however, the last-mentioned is perhaps the most important. Because few governments are yet able to afford universal secondary education, any mechanism which builds up aspirations that cannot be met needs to be scrutinised very carefully. It may be better either to restrict clusters to the primary level (where the needs seem to be greatest), or to organise separate clusters for primary and secondary schools.

4. Community Participation

Popular participation is a specific focus of Chapter 12, and most discussion will be postponed until then. Meanwhile, however, it is worth noting that cluster schemes that hope to encourage popular participation have to devise suitable structures. The clearest model is the Peruvian one. Each nucleo was governed by a community council which under the original framework had the power to select the nucleo director and to guide his work. The councils were formed by representatives of the teaching profession (40%), parents (30%), and representatives of local organisations (30%). Comparable provision was made in the Sri Lankan system.

5. Improved Equity

Clusters chiefly aim to improve equity by encouraging prosperous schools to share resources with less prosperous ones. In this connection, four main design questions arise:

(a) *Allocation of Resources.* In most schemes, cluster resources are placed under the direction of the cluster head, usually in the head's school. For this arrangement to improve equity, the authorities must ensure that the resources are shared properly. Underlying the system is the constant danger that resources will merely accumulate in the core school, and that this will increase inequalities rather than reduce them.

(b) *Rotation of Core Schools.* While some authorities designate core schools on a permanent basis, others expect appointments as core schools to rotate. The second strategy aims to spread resources and responsibility as widely as possible. However, this aim of equity might conflict with needs for efficiency and continuity.

(c) *The Nature of Groupings.* In most systems, the strongest school is made the core school, on the assumptions (a) that it has the most resources to be

shared and (b) that the head of that school is the best person to organise the sharing of resources. However, it is worth contrasting this arrangement with the system in Maharashtra (India), where the cluster scheme deliberately focused on weak schools and excluded the strong ones.

(d) *Requirements for Private Schools.* In order to improve equity, Peru's nucleo scheme was designed to link government schools with the more prosperous private ones. However, the architects of the scheme were a little naive in their expectations, for few private schools were actually willing to share their resources. Apart from requiring legal changes, enforced sharing would have resulted in an intense political battle.

10. Project Implementation

This chapter is chiefly concerned with implementation of new projects. It comments on nine major points which require attention.

1. Assessment of Needs & Attitudes

Before any scheme is embarked on, it requires careful assessment of staffing and financial needs. One problem in the Peruvian scheme was a failure to assess the full implications of the staffing plan. Each nucleo was expected to have at least four professional and three support staff. For 819 nucleos, this implied at least 3,276 professional and 2,457 support staff. Subsequent experience showed that (a) suitable people were not available in sufficient numbers, and (b) even with reduced recruitment the salary bill was an intolerable burden.

A further problem in Peru was opposition from the teachers. As in many other countries, teachers' unions were powerful. Community control was a particular aspect which they opposed - though in practice the authorities had also overestimated the extent to which communities would want to control nucleos.

In addition, cluster schemes can encounter major opposition from headteachers if they imply a reduction in their authority and autonomy. This aspect needs particularly careful handling. Although cluster schemes may seem highly desirable from an external viewpoint, they will fail if they suffer opposition from the individual headteachers who are supposed to make them work.

2. Pilot Projects

Before launching a major reform on a national scale, it is usually very helpful to initiate a few pilot projects. The projects:

- help policy-makers to clarify goals and strategies,
- help identify the obstacles that are likely to be encountered,
- provide advance publicity for the national scheme, and
- show that the scheme has been carefully thought about, and thereby improve public confidence.

If pilot projects prove successful, then policy-makers can either recommend further expansion to cover other parts of the country, or they can recommend expansion to cover the whole country. Policy-makers should be aware, however, that pilot schemes cannot completely mirror the national setting. In particular, pilot schemes usually benefit from the enthusiasm and close personal attention of the project initiators. It is impossible completely to duplicate this enthusiasm and commitment on a national scale or to maintain it at a permanently high level. Thus, success in a pilot project does not necessarily guarantee success when the project is expanded.

3. School Mapping

During cluster establishment, careful attention must be paid to both geographical and political factors. A cluster that appears sensible on paper is not always workable in practice. For example, roads may be poor, or neighbouring communities may have traditions of antagonism to each other.

Careful attention must also be paid to existing administrative boundaries. Both in Peru and Rajasthan (India), cluster boundaries tended not to match other administrative boundaries. This made it hard to coordinate the work of clusters with that of other development sectors and higher levels of educational administration.

4. Identification of Central Schools & Coordinators

Most cluster schemes face a dilemma when having to choose between personalities and locations for central schools. On the one hand, it is essential for the cluster head to be a good leader, respected by the others and capable of good decisions. However, the best leaders are not always in the schools which have the most appropriate geographic and political settings. The authorities then have to decide:

- Do they make the heads of the schools in the best locations the heads of the clusters, knowing that these people may be poor leaders and thus may doom the scheme from the start?
- Do they make other people cluster heads, even though their schools may not be most appropriately placed, and thus may obstruct effective cluster operation?
- Or do they first identify the central school and then if necessary immediately transfer a new head to it?

Of these options, the last is probably the most satisfactory, though it may disrupt the system and thus cause a difficult start for the scheme.

These remarks assume, however, that the higher authorities can appoint cluster heads. In the Thai system heads are elected by the cluster members, and in the Peruvian model launched in 1972 they were appointed by the community councils. These systems are likely to ensure local consensus, but the authorities cannot always be sure that the coordinators will be selected because of their administrative abilities rather than other political factors. It is not insignificant that the Peruvian system was changed within a few years.

One further problem of the Thailand system may also be noted: that the central school in that country changes every time a new cluster head is elected. This may be good for variety, but it can also lead to confusion. And since the central school is supposed to have extra classrooms for

cluster use, the former central schools are left with idle resources.

5. Training

No major reform can be implemented without training. Attention must be given both to general sessions which explain the objectives of the reform and to more detailed sessions on techniques. Cluster heads, for example, need training in ways to:

- organise meetings,
- identify problems and possible solutions,
- organise sharing of resources,
- deal with cluster members who are uncooperative,
- liaise with higher authorities,
- facilitate community participation,
- deal with accounting and budgeting, and
- monitor and evaluate progress.

This type of training requires both staff and finance, and must be allowed for in the initial plans.

6. Information & Publicity Needs

All major reforms need massive amounts of publicity - on the radio, on the television, through face-to-face meetings, through posters, through simple booklets, through more detailed booklets, etc.. Several cluster schemes have suffered from being too isolated. In some cases, even within the Ministries of Education only a minority of staff have understood the aims and scopes of the schemes. And while some project directors have provided useful simple booklets, they have often failed to back them up with more detailed manuals.

Moreover, experience emphasises the need for ongoing publicity thrusts. Raising of public awareness is a slow process, and cannot usually be achieved through a single

campaign. Continued publicity will be needed many years after the launch of a project.

7. Legal Requirements

Many cluster schemes also need legal changes. Particular attention should be paid to such topics as:

- finance,
- supervision, and
- teacher appointment and transfer.

In the Sri Lankan case, complications arose from delays in legal changes, for individual headteachers found themselves answerable to both cluster coordinators and Circuit Education Officers. And in other countries similar complications have arisen over transfer of financial allocations from the school level to the cluster level. Legal needs need to be carefully identified and then introduced as rapidly as possible.

8. Monitoring & Evaluation

Many cluster schemes are hard fully to assess because the authorities have failed from the start to collect systematic data on their progress. Conduct of initial baseline surveys and collection of other data (both quantitative and qualitative) is highly desirable. Good evaluation systems allow the authorities to make essential adjustments in time to avoid crises.

9. Time

Finally, cluster schemes must be given time to work. They involve major administrative changes, and implementation difficulties are inevitable. One problem is that political changes often move faster than implementation changes, and that schemes are abolished before they have a chance to prove themselves. Thus it is possible in Peru, for example, that

much could have been salvaged from the nuclearisation scheme if it had not been overtaken by political events. Of course, there is little that administrators can do to avoid these political changes; but they can at least emphasise the need for caution and adequate time.

11. Decentralisation & Educational Planning

In recent years, analysts have become increasingly critical of the centralised nature of many Third World education systems. Most cluster schemes are intended to improve educational administration through decentralisation.

This chapter begins by discussing the conceptual issues in the decentralisation debate. It then turns to the implications of decentralisation for educational planning. The related implications of decentralisation for popular participation are examined in the next chapter.

1. The Decentralisation Debate

(a) Advantages of Decentralisation

The advantages of decentralisation are often linked to the disadvantages of centralisation. The main advantages are:

* *Improved Decision-Making.* Even in small countries it is almost impossible for staff in a central Ministry of Education to have detailed knowledge of every school and every community. In centralised systems this often leads to decisions that are inappropriate. Decentralised systems, by contrast, can be much more sensitive to local needs.

  Two examples may illustrate this point:

  - On paper, it may seem desirable to open a new school in a certain location; but more detailed knowledge of community rivalries and other factors might lead to a quite different conclusion.
  - Policies prohibiting employment of untrained

teachers may make sense from a national perspective, but they may be counterproductive in communities where the only teachers available are untrained. Local decision-making would have led to a different policy.

* *Improved Efficiency.* In some systems even minor decisions, e.g. appointment of school cleaners, can only be taken by the central authorities. The process is often slow and cumbersome, and the final decision is taken by people without intimate knowledge of either the candidates or the jobs to be done. Decentralisation can speed up and improve the process.
* *Stronger Participation.* Most centralised systems are highly authoritarian. Decisions are taken at the top and are handed down; there is little scope for bottom-up decision-making. Decentralisation can be a vehicle for promoting participation both of professionals and of parents and other members of the community. As the next chapter will point out, many people consider improved participation an aspect of development and a desirable goal in itself.
* *Encouragement for Innovation.* Centralised systems are well suited to innovations initiated at the top, since the central authorities are likely to have both the authority and the resources to introduce changes. However, centralised systems tend to discourage local initiatives. Even when low-level officers perceive local problems and ways to solve them, they rarely have the authority to introduce changes. Decentralised systems can therefore be much more flexible, and can encourage local innovation.
* *Improved Planning.* For all the above reasons, it is often argued that decentralisation can improve planning. The planners can have detailed local knowledge on which to base their plans; and the local administrators are likely to be more committed to implementation of those plans.

Clusters and Innovation: International Examples

Review of the country studies in Part II of this Digest reveals a wide range of local innovation. Projects include:

- *grouping pupils into 'houses' in Debarawewa (Sri Lanka),*
- *the Muang District tin-box library project (Thailand),*
- *the use of teachers' self-evaluation techniques in Charholi (India),*
- *the nonformal education nutrition programme in Iscuchaca (Peru),*
- *curriculum adaptations in Costa Rica, and*
- *construction of a teachers' transit house in Papua New Guinea.*

One would not say that none of these could have happened in a centralised system. However, they were greatly facilitated by decentralisation. Local administrators were able to perceive their specific needs, and had the authority to introduce innovations to meet those needs.

(b) Problems of Decentralisation

Rarely, however, are matters entirely simple. There are many types of decentralisation, and the angle from which one looks at a reform may lead to very different interpretations. For example, although from one angle the Sri Lankan cluster scheme seems like a form of decentralisation from higher

levels of authority, from another angle it is a form of centralisation that reduces the autonomy of individual schools. Critics might argue that if the cluster head is not a good one, then the individual schools are subjected to bad leadership and are worse off than before.

Moreover, decentralised systems are not necessarily more efficient than centralised ones:

- if decentralisation leads to too much diversity, there may be problems of coordination;
- instead of speeding up decision-making, decentralised systems may have so many levels of government that they are highly bureaucratic and slow;
- because decentralisation usually requires employment of extra staff, it is often expensive;
- local staff and communities do not always have the required expertise to make appropriate decisions; and
- local decision-making processes are often strongly influenced by local politics; more distant decision-making may be more impartial.

These problems should not necessarily lead to abandonment of the objective, however. Positive results may still be achieved provided the authorities (i) identify the precise goals of the reform, (ii) ensure that their goals are realistic, and (iii) pay close attention to implementation.

2. Clusters and Improvement of Planning

Clusters can improve the planning process in two ways: (a) in the formulation of plans, and (b) in the implementation of plans.

(a) Plan Formulation

In several cases, formulation of plans has been an explicit function of cluster committees. This is particularly true of the Sri Lankan, Thai and Peruvian models and of some Indian

models, though it has received less emphasis in other Indian models and in Papua New Guinea.

As noted above, on a technical level the chief rationale for decentralisation of planning to the cluster level is that staff at higher levels cannot gain precise understanding of local factors. In contrast, cluster committees are likely to have good knowledge both of local geography and of the *personalities* involved - who is likely to cooperate and who is not. In addition, when plans are prepared locally, the decision-making process may be faster.

When national authorities design cluster projects, however, they must clearly identify the extent of the powers of cluster committees. For example:

* Are committees allowed to restrict enrolment in schools in order to concentrate on quality rather than quantity?
* Can committees move staff from one school to another?
* Can committees require parents to pay fees or to contribute labour?
* Can committees change school curricula, e.g. to give more emphasis to local languages?
* Can committees punish schools or individuals that fail to comply with plans (e.g. by misusing or failing to circulate shared equipment)?
* If a committee notes that enrolment in one school is declining (e.g. because of population movement), is it empowered to close that school?

In addition, the authorities should (i) ensure that committees know how much money and other help will be allocated to them by higher levels in the system, (ii) specify the time period that plans should cover, and (iii) indicate the times at which and the extent to which committees may revise plans.

Conditions for Effective Planning: Lessons from Peru

When the Peruvian nuclearisation scheme was launched in 1972, major emphasis was placed on planning. The central authorities decided that (a) each nucleo should have a full-time professional planner, (b) training courses would be provided, and (c) technical manuals would be prepared.

The nucleos took their task seriously, and most produced some sort of written plan within a short time. The assistance provided by the central authorities clearly showed its worth.

As time proceeded, however, it became apparent that expectations had been over-ambitious:

- many nucleos found it hard to recruit and retain suitable professionals;
- while most nucleos were able to identify problems, they found it harder to decide on priorities;
- much planning was conducted in a financial vacuum: the planners had to work without estimates of costs or anticipated resources;
- insufficient allowance was made for plan revision; and
- staff at higher levels of the system sometimes failed to recognise the authority of the nucleo plans, which reduced the commitment of those responsible for formulating them.

The Peruvian model thus highlights the need for sustained attention to planning needs. Staffing, training and preparation of technical manuals are certainly initial steps than must be followed in all schemes. However, attention to other matters is also essential for success.

(b) Plan Implementation

Clusters are also units for implementation - both of their own plans and of plans from higher levels. Assuming that the questions of division of power have been settled, provincial and district authorities can issue instructions to cluster committees on such topics as:

- enrolment of pupils,
- implementation of curriculum,
- use of assessment techniques,
- processing of staff applications for leave, etc..

At the same time, it is essential for designers of cluster schemes to think about sanctions if clusters fail to implement plans. For example, what should they do if:

* an individual headteacher refuses to cooperate with a cluster committee?
* cluster committees are supposed to recommend staff for promotion, but either fail to do so, or else make recommendations that are clearly based on favouritism?
* extra resources are allocated to a central school for general sharing, but are actually not shared?

On the one hand, these may all be described as internal matters - and the concept of decentralisation demands respect for the decisions of the lower bodies. But on the other hand, positive action is clearly important if the scheme is to work properly. The first case, of non-cooperation, may not be too serious: at least the education system would be no worse off than if the cluster system had never been initiated. However, improper recommendation of staff for promotion may destroy the whole basis of the system, and concentration of resources in one school could defeat the cluster scheme's aim to reduce inequalities between schools.

Because of these factors, authorities must have clear procedures for (i) monitoring the work of clusters, and (ii) dealing with unsatisfactory cases. To help with monitoring, they might demand periodic progress reports; and to help achieve good performance they might use their powers of staff appointment and of financial allocation. Always, however, they must be sensitive to the danger of excessive control defeating the goal of local autonomy implied in a decentralisation reform.

Types and Degrees of Decentralisation

Decentralisation is rather a general term, referring broadly to transfer of decision-making powers from a higher body to a lower one. Sometimes it is desirable to use more precise terms:

a. Deconcentration *refers to establishment of units of the central authority in different parts of the country. In education, the units may be regional, district or cluster bodies. Deconcentration may be the first step towards greater local autonomy, and can certainly make the system more sensitive to local issues. However, the staff are still employees of the central ministry, and remain accountable to it.*

b. Delegation *of powers implies stronger local autonomy. In law, the powers still rest with the central authorities, who can withdraw them at any any time. Meanwhile, the central authorities choose to 'lend' powers to the local authorities.*

c. Devolution *is the strongest of the three types. Here the central authority transfers decision-making powers to the local bodies, and no longer has any power over them.*

The three 'levels' of decentralisation imply corresponding degrees of central control. Central authorities who fear that clusters might operate badly or might make decisions that disrupt the overall national system could choose a deconcentrated or a delegated system rather than a devolved one. The administrative and legal framework would be adjusted accordingly.

12. Clusters & Popular Participation

Many people hold that participation in decision-making is itself an aspect of development. The revolutionary government in Peru, for example, saw participation as an end in itself. It advocated nuclearisation in order to increase opportunities for participation. A similar sentiment has been expressed by President Kaunda of Zambia:

> Decentralisation and the winning of power by the people to do things for themselves ... produces results in terms of human dignity and human self-fulfilment which are incapable of being expressed in any statistical form at all. Yet they remain things of profound importance in terms of the quality of life of our people.

Many Third World governments have also found that increased participation in decision-making increases the resources available to schools. Communities become more willing to donate money, materials and labour.
Like the other outcomes of decentralisation, however, participation may prove hard to achieve. Decentralisation is a necessary condition, but by itself is not sufficient. This section will discuss (1) the obstacles to effective participation, and then (2) ways to overcome the obstacles.

1. Obstacles to Effective Participation
Four obstacles are worth particular note:

(a) *Traditions.* Many societies simply lack a tradition of participation. The Peruvian authorities met this

difficulty. Before the revolution, Peru was an authoritarian society, and people had become apathetic. Even if they did not like government decisions, they had grown used to accepting them. Their habits could not be changed overnight. Some even feared to participate too openly in case the political situation changed and they were later labelled 'collaborators'.

(b) *Skills.* Running an education system is a complex and time-consuming activity. Ordinary people may not feel qualified for the task. They may prefer to leave decision-making to professionals.

(c) *Time.* Committee work can be very time-consuming. It often takes many hours to reach consensus even on minor topics, and discussion frequently has to be repeated at subsequent meetings for the benefit of individuals who were absent from earlier ones.

(d) *Distance.* People from scattered communities cannot easily attend meetings in a central place. Communications may be so poor that they rarely receive notice of meetings in time; they may have no money for travel; and they may be unable to spare time for both travel and the meetings themselves.

Partly because of these reasons, membership of committees is often biased towards certain groups:

- professionals (rather than manual workers),
- men (rather than women),
- more educated (rather than less educated),
- local residents (rather than ones from more distant places),
- young and middle-aged (rather than old).

Deliberate efforts have to be made to improve the representativeness of important committees.

2. Strategies for Improving Participation

Seven ingredients of successful strategies are worth particular mention:

(a) *Recognition of the Obstacles.* Although this might seem obvious, an extraordinary number of regimes have failed fully to recognise the obstacles to participation. Like the Peruvian government, they assume that participation can be fostered by decree. Rarely does effective and representative participation grow by itself: it must be fostered.

(b) *Leadership Training.* In the cluster system, the most important ingredient is a good cluster head. As soon as individuals have been appointed, they must be given guidance in how to run meetings, how to encourage people to attend, how to delegate tasks, and how to evaluate achievements. This will require:

- production of guidebooks - some simple, and some detailed. The books should contain (a) concrete illustrations of situations in which leaders might find themselves, and (b) suggestions about how to tackle difficulties.
- workshops at which experienced and less experienced leaders can discuss ideas. The workshops are especially important for individuals newly appointed to leadership positions, but refresher courses are also desirable every two or three years.
- introduction to people and bodies to whom they can turn for help.

(c) *Delegation of Authority.* Nobody wants to participate in bodies that appear to be useless and peripheral to the system. Higher officials must ensure that they appreciate the work done by cluster committees. They must ensure that the committees have reasonable powers, and they must encourage committees to use

those powers.

In both Thailand and Peru, participation has been stifled by the failure of senior civil servants to recognise the role of cluster committees. Sometimes the situation has been based on good intentions: that the civil servants have felt themselves in a better position to make the most appropriate decisions. However, good intentions could not disguise the fact that the officers did not trust the committees. As noted above in connection with decentralisation, committees have to be trusted. Certainly there will be mistakes, but mistakes help people to learn; and a committee which is not allowed to make mistakes is obviously a committee without much autonomy.

(d) *Information.* In order to make good decisions, committees need information. Governments may not be good at disseminating information, e.g. on budgeting procedures, staffing policies, monetary allocations, etc. Improvement of information flow requires a positive effort. Like training materials, information sometimes needs to be simplified in order to be digestible.

(e) *Professional Cooperation.* Following on the above point and the point about skills, professionals who specialise in particular topics must be willing to share their expertise. For example, ordinary people may be unwilling to embark on curriculum changes - or if they are willing, they may not fully understand the consequences of their actions. If a curriculum specialist comes to talk with committee members - preferably *without* imposing his own ideas - then the committee members will be placed in a much better position to make sensible decisions.

(f) *Finance.* Experience shows that, for a cause they believe in, individuals are usually willing to contribute long hours and to make personal sacrifices. Allocation of sitting allowances etc. may be counter-productive because people see committee membership as

a way to make money and are less likely to have the ideals of the committee at heart. However, some finance may be necessary, e.g. for reproduction of minutes, etc.. This need not be a large amount, but could make a considerable difference.

(g) *Patience.* Building of meaningful and balanced participation cannot happen overnight: it requires decades of patient effort. One of the problems with the Peruvian scheme was that the attempt to build participation was overtaken by other changes. No sooner had the nucleos been established than some of them were disrupted by amalgamation, and after 1977 the project was beset by economic and political difficulties. To some extent, the project was abandoned before it had a chance to prove its effectiveness.

The message of patience, it may be added, should be spread to the communities themselves. Many worthwhile projects have collapsed because they have been based on over-ambitious expectations and because support has not been sustained.

Finally, however, it may be noted that in some cluster schemes popular participation is only a minor objective. More important objectives may be sharing of resources between schools, and improved equity. These certainly need the participation of the school staffs, but they do not necessarily need broader participation. As such, clusters can still be very useful innovations even in the complete absence of outside participation in decision-making.

Encouraging Participation: Where to Start

It is immediately obvious that some people are more interested in participation than others, and are able to work in committees more effectively. They are likely to include religious leaders, local government officials, and prominent businessmen.

This does not mean that the others should be ignored - they may have a lot to contribute, and it is dangerous for the social composition of committees to be unbalanced. In a new project, however, it makes sense to start with the interested and talented ones and then to spread the net outwards.

In the case of schools, it is always easier to involve parents than other members of the community. For this reason, most cluster committees start by approaching Parent-Teacher Associations. Once the parents are active, it becomes easier to involve other members of the community.

13. Conclusions

While noting some of the difficulties associated with cluster formation and operation, review of international experience has clearly shown some strong potential. This concluding chapter first summarises the benefits, and makes some final points about feasibility and cluster design.

1. The Benefits of School Clusters

The country studies have highlighted a wide range of models, from the highly structured and far-reaching system in Sri Lanka to the much looser and more narrowly focused system of Papua New Guinea. In varying degrees, all these systems can achieve a wide range of economic, pedagogic, administrative and political objectives. Clusters can be particularly valuable to small schools, providing:

* extra resources,
* colleagues for teachers, and
* wider social, academic and sporting contacts for pupils.

However, it is dangerous to assume that clusters are always desirable or can be introduced in all circumstances. As such, careful attention must be paid to aspects of feasibility and design.

2. Cluster Feasibility

The feasibility of particular schemes depends, of course, on their objectives - and the most modest objectives are usually the easiest to achieve. Thus, in all countries one can en-

visage regional meetings at which heads of neighbouring schools periodically come together to discuss such topics as:

- problems and techniques of school administration,
- arrangement of sporting competitions,
- implementation of new curricula,
- making of bulk purchases, etc..

Such meetings are already common in most countries, and do much to assist the operation of their education systems.

When cluster operation becomes more ambitious, however, feasibility must be assessed more carefully. For example, even the relatively simple proposal that schools should share equipment requires comparison of the costs of sharing with the costs of allocating a full set of equipment to each school. The costs of sharing would be both financial and non-financial:

- If pupils and staff in satellite schools have to travel long distances to use equipment in a central school, they incur the costs of tiredness and of transportation.
- Alternatively, if equipment is expected to circulate round schools, there are potential costs of transportation, breakage, and disruption of curriculum if the equipment gets lost or delayed.

In both cases, it is possible that the costs of sharing would be greater than the costs of allocating each school its own full set of equipment.

Feasibility must also take into account many other factors. They include:

- the topography of the areas to be covered, and thus the ease or difficulty of communication,
- the attitudes of the people involved at the cluster level,
- the attitudes of officers higher up in the education

system,
- the additional staffing needs of the scheme,
- the skills of the people responsible for operation, and
- the requirements for finance.

3. Cluster Design

Building on the point about finance, it is worth noting that although the majority of cluster schemes allocate extra resources to share among schools and to cover expenses, a few projects have been launched without these inputs. The latter include the schemes in Burma, Maharashtra (India) and Costa Rica. They have tried to improve utilisation of existing resources, and have chiefly relied on the enthusiasm and personal satisfaction of the participants.

The chief lesson taught by these schemes is that it is indeed possible to mobilise local enthusiasm and commitment without financial inputs from above. When community members and teachers consider a cause worthwhile, they are often willing to contribute not only their time and labour but also material goods and cash. In addition, these schemes have the advantage that they are not vulnerable to government budgetary cutbacks.

At the same time, however, it is worth recalling Olivera's (1983, p.114) comment about the Costa Rican situation: that "goodwill and enthusiasm can take things thus far and no more". If governments can afford it, allocation of extra resources to the cluster level is highly desirable. First, it discourages the tendency to blame lack of action on lack of finance. Second, and perhaps even more importantly, it gives strength to the cluster as a unit, reinforcing its authority and purpose.

In addition, this Digest has drawn attention to many other aspects of cluster design. Chapter 9 in particular highlighted:

* mechanisms and organisational requirements for sharing

both movable and fixed resources,
* in the case of inspection and supervision, a need for

  - clear definition of responsibilities,
  - careful attention to distribution of workloads,
  - sufficient finance, and
  - assistance with skills,

* the factors that influence the optimum cluster size,
* the factors that influence geographical coverage, and
* ways to achieve the goals of equity.

4. Conclusion

This review has shown that clusters can indeed play a positive role, helping to improve the operation of school systems. They are not a panacea, and international experience shows evidence of shortcomings and failures as well as successes. However, much can be achieved provided policy-makers are realistic in their aims and pay careful attention to design and implementation.

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A school cluster is a grouping of schools for administrative and educational purposes. In some countries, school clusters are called nucleos, complexes or zones.

Common objectives of cluster schemes are:

- more efficient use of scarce resources,
- decentralisation of decision-making,
- help for disadvantaged communities,
- increased participation in development,
- support for isolated teachers, and
- improved social equity.

This booklet examines the ways that these objectives can be achieved. It draws heavily on international experience, particularly in Sri Lanka, Thailand, India, Peru, Costa Rica and Papua New Guinea. It is a practical guide which highlights both the advantages and the problems of cluster schemes. It will be of considerable use to planners and programmers.